Uploading C:\Program Files\STNEXP\Oueries\10583028#2.str

17

8۴

15 16 17 18 19 20 21 22 23 24 25 27 ring nodes:
1 2 3 4 5 6 7 8 9 10 11 12 13 chain bonds:
1 2 3 20 4-21 7-23 10-25 11-24 12-15 15-19 15-27 16-18 16-17 16-27 ring bonds:
1 -2 3-20 4-21 7-23 3 0-25 11-24 12-15 15-19 15-27 16-18 16-17 16-27 ring bonds:
1 -2 1 -6 2-3 3-4 4-5 5-6 5-13 6-8 7-8 7-12 8-9 9-10 9-13 10-11 11-12 exact/norm bonds:
5-13 6-8 9-13 12-15 exact bonds:
1 -22 3-20 4-21 7-23 10-25 11-24 15-19 15-27 16-18 16-17 16-27 normalized bonds:

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:Atom 18:Atom 19:Atom 20:CLASS

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

: Unsaturated

# G1:Cb, Ak, C, H

21:CLASS 22:CLASS

chain nodes :

# G2:Cb,Hy Match level :

Saturation

23:CLASS 24:CLASS 25:CLASS 27:Atom
Generic attributes :
17:
Saturation : Unsaturated
18:
Saturation : Unsaturated
19:
Saturation : Unsaturated
27:

## L1 STRUCTURE UPLOADED

=> d 11 L1 HAS NO ANSWERS L1 STR

Structure attributes must be viewed using STN Express query preparation.

=> s 13 L4 6 L3

=> s 13 full L5 6 L3

=> d ibib abs hitstr 1-6

L5 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2008:1282001 CAPLUS Full-text

DOCUMENT NUMBER: 149:494318

TITLE: Sulfonated polymeric compound, its intermediate, and organic electroluminescent device containing the

compound

INVENTOR(S): Sekiguchi, Michiru; Togashi, Kazuhiko

PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan

SOURCE: PCT Int. Appl., 165pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1 PATENT INFORMATION:

PAT	ENT				KIN	D	DATE			APPL		ION I				ATE	
WO	2008				A1		2008	1023		WO 2							
	W:	ΑE,	AG,	AL,	AM,	AO,	AT,	AU,	AZ,	BA,	BB,	BG,	BH,	BR,	BW,	BY,	BZ,
		CA,	CH,	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DO,	DZ,	EC,	EE,	EG,	ES,
		FI,	GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,
				KN,	KP,	KR,	ΚZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LY,	MA,	MD,
	KG, KM, KN ME, MG, ME			MK,	MN,	MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,
		PL,	PT,	RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	TJ,	TM,
		TN,	TR,	TT,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,	ZA,	ZM,	ZW			
	RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HR,	HU,
		IE,	IS,	IT,	LT,	LU,	LV,	MC,	MT,	NL,	NO,	PL,	PT,	RO,	SE,	SI,	SK,
		TR,	BF,	BJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,
		TG,	BW,	GH,	GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,
		AM,	AZ,	BY,	KG,	ΚZ,	MD,	RU,	ΤJ,	TM							
RITY	APP	T.N	TNEO							TP 2	007-	9810	3		A 2	0070	404

PRIORITY APPLN. INFO.: JP 2007-98103 A 20070404

$$\begin{array}{c} (z^{2})_{p^{1}} \\ (z^{2})_{p^{2}} \\ (z^{2$$

- AB A sulfonated polymeric compound, and its intermediate, which sulfonated polymeric compound is characterized by having the structure resulting from introduction of a sulfo group in a polymeric compound having, in its polymer chain, ≥1 of the repeating units (I) (wherein each of Z1 to Z4 is a substituent; each of p1 and p2 is an integer of 0 to 5; each of p3 and p4 is an integer of 0 to 4; each of X1 to X4 is a monovalent aromatic group, provided that X1 and X2, and X3 and X4, may be bonded with each other to thereby form a ring; Y is a bivalent aromatic group; each of Ar1 to Ar4 independently is a bivalent aromatic group, provided that the bivalent aromatic group may be an aromatic group resulting from bonding of aromatic groups to each other leading to cyclization; each of T1 and T2 independently is a single bond or a group selected from the group consisting of -(CH2)t-, -CH=CH-, -C=C-, -O-, -S-, -CO102-, -CO-, -SO-, -SO2- and -SiE2-; t is an integer of 1 to 20; each of Q1 and Q2 is an alkyl or an aromatic group, provided that these may be bonded with each other to thereby form a ring; E is a hydrogen atom, an alkyl or an aromatic group; and each of m and n is an integer of 0 to 2).
- T 1072155-70-4DP, sulfonated compound

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of solvent-soluble sulfonated polymeric compds. and their intermediates useful for organic electroluminescent devices)

- RN 1072155-70-4 CAPLUS
  - Poly[[9-(9,9-dimethyl-9H-fluoren-2-yl)-9H-carbazole-3,6-diyl][[4-(diphenylamino)phenyl]imino)-1,4-phenylene(3,4-diphenyl-2,5-thiophenediyl)-1,4-phenylene[[4-(diphenylamino)phenyl]imino]] (CA INDEX NAME)

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(manuf. of solvent-sol. sulfonated polymeric compds. and their

intermediates useful for org. electroluminescent devices
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILA

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:1237378 CAPLUS Full-text

DOCUMENT NUMBER: 147:494224

TITLE: Carbazole derivatives, their uses, and organic

electroluminescent devices using them

INVENTOR(S): Nakayama, Masami, Kato, Hideyuki
PATENT ASSIGNEE(S): Bando Chemical Industries, Ltd., Japan
SOURCE: Jpp. Kokai Tokkyo Koho. 16pp.

SOURCE: Jpn. Kokai Tokkyo Koho, 16pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO. I	DATE
JP 2007284411	A	20071101	JP 2006-116940 2	20060420
PRIORITY APPLN. INFO.:			JP 2006-116940 2	20060420
OTHER SOURCE(S):	MARPAT	147:494224		

AB Title derivs. I [A = H, halo, C1-20 alky1, C1-20 alkoxy, (un)substituted ary1, (un)substituted heterocycly1; R1-R6 = H, C1-20 alky1, C1-20 alkoxy, di(C1-20 alky1)amino, (un)substituted ary1, (un)substituted heterocycly1] are used as hole injecting agents and/or hole transport agents. Also claimed are organic electroluminescent devices having a hole injection layer and/or hole transport layer containing above agents.

F 884510-65-0P 953812-97-0P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of bis[phenyl(diphenylaminophenyl)amino]carbazoles and organic

Τ

electroluminescent devices having hole injection layer and/or hole transport layer containing them)

884510-65-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

953812-97-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-9-ethyl-N3,N6diphenyl- (CA INDEX NAME)

L5 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:175254 CAPLUS Full-text

DOCUMENT NUMBER:

146:238974

TITLE:

Arylamine compounds which have resistance to repeated oxidation reactions, and light-emitting elements and electronic devices employing the arylamine compounds Nakashima, Harue; Kawakami, Sachiko

INVENTOR(S): PATENT ASSIGNEE(S):

Semiconductor Energy Laboratory Co., Japan

SOURCE: U.S. Pat. Appl. Publ., 48pp.

> CODEN: USXXCO Patent

DOCUMENT TYPE: LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1 PATENT INFORMATION:

PA	IENT I				KIN	D	DATE			APPL	ICAT	ION I			D	ATE	
	2007				A1 A1		2007				006- 006-					0060	
	CN, GE, KZ, MX, SD,			CR, GM, LC, NA,	CU, HN, LK, NG,	CZ, HR, LR, NI,	AU, DE, HU, LS, NO, SM,	DK, ID, LT, NZ,	DM, IL, LU, OM,	DZ, IN, LV, PG,	EC, IS, LY, PH,	EE, KE, MA, PL,	EG, KG, MD, PT,	ES, KM, MG, RO,	FI, KN, MK, RS,	GB, KP, MN, RU,	GD, KR, MW, SC,
	RW:	AT, IS, CF,	BE, IT, CG,	BG, LT, CI,	LU, CM,	CY, LV, GA,	CZ, MC, GN,	NL, GQ,	PL, GW,	PT, ML,	RO, MR,	SE, NE,	SI, SN,	SK, TD,	TR, TG,	BF, BW,	BJ, GH,

KG, KZ, MD, RU, TJ, TM

JP 2007070352	A	20070322	JP	2006-217779		20060810
CN 101243038	A	20080813	CN	2006-80029357		20080213
KR 2008034191	A	20080418	KR	2008-705376		20080304
PRIORITY APPLN. INFO.:			JP	2005-234432	A	20050812
			WO	2006-JP315351	W	20060727

OTHER SOURCE(S): MARPAT 146:238974

AB Secondary arylamine compds. having resistance to repeated oxidation reactions are described by the General Formula NH(Arl)XN(Ar2)Ar3, wherein Arl is one of an aryl group having 7 to 25 C atoms and a heteroaryl group having 7 to 25 C atoms, where each of Ar2 and Ar3 is one of an aryl group having 6 to 25 C atoms and a heteroaryl group having 5 to 9 C atoms, and where X is one of a bivalent aromatic hydrocarbon group having 6 to 25 C atoms and a bivalent heterocyclic group having 5 to 10 C atoms. Light-emitting elements and electronic devices employing the arylamine compds. are also discussed.

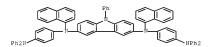
IT 884510-67-2P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (arvlamine commods, which have resistance to repeated oxidation reactions,

(arylamine compds. which have resistance to repeated oxidation reaction and light-emitting elements and electronic devices employing arylamine compds.)

RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)



L5 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2006:542713 CAPLUS Full-text

DOCUMENT NUMBER: 145:17408

TITLE: Light emitting element that includes a mixed carbazole derivative-transition metal oxide hole transport layer

INVENTOR(S): Nakashima, Harue; Kawakami, Sachiko; Kumaki, Daisuke; Seo, Satoshi; Ikeda, Hisao; Sakata, Junichiro; Iwaki,

Vnii

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

PCT Int. Appl., 145 pp.

CODEN: PIXXD2 Patent

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

SOURCE:

PATENT	NO.			KIN	D	DATE		1	APPL	ICAT	I NOI	NO.		D	ATE	
					-											
WO 2006	0597	45		A1		2006	0608	1	WO 2	005-	JP22:	240		2	0051	128
W:	0 2006059745 W: AE, AG, A				AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,
	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,
	CN, CO, C GE, GH, G			HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KM,	KN,	KP,	KR,

```
KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX,
             MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
             SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
             VN, YU, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
             IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
             CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
             GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM
                                            CN 2005-80040713
     CN 101065858
                          A
                                20071031
                                                                   20051128
     JP 2006303421
                                20061102
                                            JP 2005-345745
                                                                   20051130
                          Α
     US 20090058267
                                            US 2006-584308
                          A1
                                20090305
                                                                   20060623
     KR 2007090215
                                20070905
                                            KR 2007-714544
                                                                   20070626
                          Α
                                                                A 20041130
PRIORITY APPLN. INFO.:
                                            JP 2004-347518
                                            JP 2005-84566
                                                                A 20050323
                                            WO 2005-JP22240
                                                                W 20051128
OTHER SOURCE(S):
                        MARPAT 145:17408
```

GI

AB One object of the present invention is to provide a light emitting element that includes an organic compound and an inorg, compound and has low driving voltage. The light emitting element of the invention includes a plurality of layers between a pair of electrodes, wherein the plurality of layers includes a layer that contains a carbazole derivative represented by a general formula (I; R1 = e.g., H, alkyl, aryl; R2 = H, alkyl, NAr4YNAr5Ar6; Ar1-Ar6 = aryl, heteroaryl; X, Y = bivalent aromatic hydrocarbon or bivalent heterocycle ) and an inorg, compound exhibiting an electron accepting property with respect to the carbazole derivative By utilizing this structure, electrons are transported between the carbazole derivative and the inorg, compound and carriers are internally generated, and hence, the driving voltage of the light emitting element can be reduced. Thus, e.g., coupling of 3,6-diiodo-9phenylcarbazole (preparation given) with PhNHC6H4-p-NPh2 (preparation given) afforded target carbazole II (75% yield). A 50 nm film containing II and molybdenum oxide (1:1.5 molar ratio) exhibited a charge-transfer absorption band (absent in either component of the film taken individually) representing hole generation in II and electron acceptance by molybdenum oxide; consequently, the driving voltage of a light-emitting element can be reduced because of this internal carrier generation.

IT 884510-65-0P 884510-67-2P

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses) (light emitting element that includes a mixed carbazole

derivative-transition metal oxide hole transport layer)

RN 884510-65-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2006:380901 CAPLUS Full-text

DOCUMENT NUMBER: 144:422228

TITLE: Carbazole derivative, and light emitting element and light emitting device using the carbazole derivative

INVENTOR(S): Nakashima, Harue; Kawakami, Sachiko; Kumaki, Daisuke PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: PCT Int. Appl., 142 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PA'	TENT	NO.			KIN	D	DATE			APPL	ICAT	ION I	NO.		D	ATE	
						-											
WO	2006	0436	47		A1		2006	0427		WO 2	005-	JP19	349		2	0051	014
	W: AE, AG, AI				AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,
	W: AE, AG, A CN, CO, C		CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FΙ,	GB,	GD,	
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KM,	KP,	KR,	ΚZ,
		LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,
	NA, NG, NI			NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,

SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM EP 1805140 20070711 EP 2005-795774 20051014 A1 R: DE, FI, FR, GB, NL CN 101039909 20070919 CN 2005-80035385 A 20051014 JP 2006298895 Α 20061102 JP 2005-303732 20051018 US 20080284328 US 2006-583028 A1 20081120 20060615 PRIORITY APPLN. INFO.: JP 2004-304225 A 20041019 JP 2004-333344 A 20041117 JP 2005-84533 A 20050323 WO 2005-JP19349 W 20051014 OTHER SOURCE(S): MARPAT 144:422228

AB The title carbazole derivs. are described by the general formula I (R1 = H, C1-6 alkyl, C6-25 aryl, C5-9 heteroaryl, arylalkyl, or C1-7 acyl; R2 = H, C1-6 alkyl, or -N(Ar4)-Y-N(Ar5)Ar6; Ar1-6 = independently selected C6-25 aryl and/or C5-9 heteroaryl; and X and Y = independently selected C6-25 bivalent aromatic hydrocarbon and/or C5-10 bivalent heterocyclic group). Lightemitting elements incorporating the derivs., devices (e.g., displays) incorporating the elements, and electronic apparatus employing the elements, are also described.

IT 884510-65-0P

GI

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(carbazole derivative, and light emitting element and light emitting device using carbazole derivative)

RN 884510-65-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(carbazole derivative, and light emitting element and light emitting device using carbazole derivative)

RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:1042363 CAPLUS <u>Full-text</u>

DOCUMENT NUMBER: 143:356288

TITLE: Phenyl carbazole derivatives and organic electroluminescent devices using the same

INVENTOR(S): Kim, Ji-Eun; Lee, Jae-Chol; Kim, Kong-Kyeom; Bae, Jae-Soon; Jang, Jun-Gi; Jeon, Sang-Young; Kang,

Min-Soo; Cho, Wook-Dong; Jeon, Byung-Sun; Kim,

Yeon-Hwan

PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea SOURCE: PCT Int. Appl., 126 pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: English FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PAT	TENT :	NO.			KIN	D	DATE			APPL					D	ATE	
						-									-		
WO	2005	0905	12		A1		2005	0929		WO 2	005-	KR79	4		2	0050	318
	W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,
		CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KP,	KZ,	LC,	LK,
		LR,	LS,	LT,	LU,	LV,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NA,	NI,	NO,
		NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SY,
	TJ, TM, TN, TR, TT,							UA,	UG,	UZ,	VC,	VN,	YU,	ZA,	ZM,	zw	
	RW: BW, GH, GI			GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,
		AZ,	BY,	KG,	KΖ,	MD,	RU,	ΤJ,	TM,	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,
		EE,	ES,	FΙ,	FR,	GB,	GR,	HU,	IE,	IS,	IT,	LT,	LU,	MC,	NL,	PL,	PT,
		RO,	SE,	SI,	SK,	TR,	BF,	ΒJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	G₩,	ML,
		MR,	NE,	SN,	TD,	TG											
KR	2005	1180	98		A		2005	1215		KR 2	004-	1163	88		2	0041	230
US	2005	0225	235		A1		2005	1013		US 2	005-	8336	0		2	0050	318
KR	2006	0444	24		A		2006	0516		KR 2	005-	2276	2		2	0050	318
EP	1725	632			A1		2006	1129		EP 2	005-	7334	37		2	0050	318
	R:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,
	R: AT, BE, BG IS, IT, LI					LU,	MC,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR		

CN 1906268	A	20070131	CN	2005-80001667		20050318
JP 2007520470	T	20070726	JP	2006-546860		20050318
IN 2006KN01638	A	20070511	IN	2006-KN1638		20060613
PRIORITY APPLN. INFO.:			KR	2004-18877	Α	20040319
			KR	2004-116388	Α	20041230
			WO	2005-KR794	W	20050318

OTHER SOURCE(S): MARPAT 143:356288

AB N-Ph carbazole derivs. are claimed which are described by the general formula I (A = -R1N(R2) -, or -R1N(R2) - Ar -; B = -R3N(R4) -, or -R3N(R4) - Ar -; C = -R3N(R4) - AR5N(R6) -, or -R5N(R6) -Ar-; D = H, -R7N(R8) -, or -R9N(R10) -Ar-; R1-10 = independently selected group each comprising only once or repeatedly ≥2 times, ≥1 of H, C1-20 aliphatic hydrocarbon, aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy, or amino group, silicon group having an aromatic substituent; heterocyclic aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy or amino group, thiophene group substituted with a C1-20 hydrocarbon or C6-24 aromatic hydrocarbon; and a boron group substituted with an aromatic hydrocarbon; Ar = an aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy, or amino group; and  $1 \ge 1$ ;  $m \ge 1$ ;  $n \ge 1$ ; and  $o \ge 0$ ; with the restriction that the compound represented by formula I wherein R1-6 = H simultaneously and D also = H is excluded). Organic electroluminescent devices using the compds., especially in hole-injecting, hole-transporting, or light-emitting layers, are also described.

# IT 865596-39-0 865596-40-3

RL: DEV (Device component use); USES (Uses)

(Ph carbazole derivs. and organic electroluminescent devices using them) RN 865596-39-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6,9-tris[4-(diphenylamino)phenyl]-N3,N6-diphenyl- (CA INDEX NAME)

RN 865596-40-3 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-9-[4-(1-naphthalenylphenylamino)phenyl]-N3,N6-diphenyl- (CA INDEX NAME)

Uploading C:\Program Files\STNEXP\Queries\10583028#2.str

chain nodes :

15 16 17 18 19 20 21 22 23 24 25 27

ring nodes:
1 2 3 4 5 6 7 8 9 10 11 12 13

chain bonds :

1-22 3-20 4-21 7-23 10-25 11-24 12-15 15-19 15-27 16-18 16-17 16-27

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-13 6-8 7-8 7-12 8-9 9-10 9-13 10-11 11-12

exact/norm bonds :

normalized bonds :

5-13 6-8 9-13 12-15

exact bonds :

1-22 3-20 4-21 7-23 10-25 11-24 15-19 15-27 16-18 16-17 16-27

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

G1:Cb, Ak, C, H

G2:Cb, Hy

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom

11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:Atom 18:Atom 19:Atom 20:CLASS 21:CLASS 22:CLASS

23:CLASS 24:CLASS 25:CLASS 27:Atom

Generic attributes :

17:

Saturation : Unsaturated

18: Saturation : Unsaturated

19: Saturation : Unsaturated 27:

Saturation : Unsaturated

L6 STRUCTURE UPLOADED

=> d 16 L6 HAS NO ANSWERS L6 STR

Structure attributes must be viewed using STN Express query preparation.

=> s 16

SAMPLE SEARCH INITIATED 18:10:58 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 5979 TO ITERATE

33.5% PROCESSED 2000 ITERATIONS INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)

EXCEEDED)

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*
BATCH \*\*COMPLETE\*\*
PROJECTED ITERATIONS: 114944 TO 124216

PROJECTED ANSWERS: 0 TO 0

L7 0 SEA SSS SAM L6

=> s 16 full

FULL SEARCH INITIATED 18:11:11 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 121554 TO ITERATE

100.0% PROCESSED 121554 ITERATIONS SEARCH TIME: 00.00.05

ESSED 121554 ITERATIONS 56 ANSWERS

SEARCH TIME: 00.00.00

L8 56 SEA SSS FUL L6

=> s 18 L9 14 L8

=> s 18 full

L10 14 L8

=> d ibib abs hitstr 1-14

L10 ANSWER 1 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:1282001 CAPLUS Full-text
DOCUMENT NUMBER: 149:494318

TITLE: Sulfonated polymeric compound, its intermediate, and organic electroluminescent device containing the

compound

INVENTOR(S): Sekiguchi, Michiru; Togashi, Kazuhiko

PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan SOURCE: PCT Int. Appl., 165pp.

SOURCE: PCT Int. Appl., 165pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	ENT				KIN	D	DATE			APPL	ICAT	ION :	NO.		D.	ATE	
	2008				A1	-	2008	1023		WO 2	008-	JP86	1		2	0080	403
	W:	ΑE,	AG,	AL,	AM,	AO,	AT,	AU,	AZ,	BA,	BB,	BG,	BH,	BR,	BW,	BY,	BZ,
		CA,	CH,	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DO,	DZ,	EC,	EE,	EG,	ES,
		FI,	GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,
	KG, KM, KN					KR,	ΚZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LY,	MA,	MD,
	ME, MG, MK					MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,
		PL,	PT,	RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	ТJ,	TM,
		TN,	TR,	TT,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,	ZA,	ZM,	ZW			
	RW:	ΑT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HR,	HU,
		ΙE,	IS,	ΙT,	LT,	LU,	LV,	MC,	MT,	NL,	NO,	PL,	PT,	RO,	SE,	SI,	SK,
		TR,	BF,	ВJ,	CF,	CG,	CI,	CM,	GΑ,	GN,	GQ,	GW,	ML,	MR,	ΝE,	SN,	TD,
	TR, BF, BJ TG, BW, GH					KE,	LS,	MW,	ΜZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,
		AM,	ΑZ,	BY,	KG,	ΚZ,	MD,	RU,	ТJ,	TM							
PRIORITY GI	APP	LN.	INFO	. :						JP 2	007-	9810	3		A 2	0070	404

$$\begin{array}{c} (z^1)_{p1} \\ (z^2)_{p2} \\ (z^2)_{p2} \\ (z^2)_{p2} \\ (z^2)_{p4} \\ (z^3)_{p3} \\ (z^4)_{p4} \end{array}$$

- A sulfonated polymeric compound, and its intermediate, which sulfonated AB polymeric compound is characterized by having the structure resulting from introduction of a sulfo group in a polymeric compound having, in its polymer chain, ≥1 of the repeating units (I) (wherein each of Z1 to Z4 is a substituent; each of p1 and p2 is an integer of 0 to 5; each of p3 and p4 is an integer of 0 to 4; each of X1 to X4 is a monovalent aromatic group, provided that X1 and X2, and X3 and X4, may be bonded with each other to thereby form a ring; Y is a bivalent aromatic group; each of Ar1 to Ar4 independently is a bivalent aromatic group, provided that the bivalent aromatic group may be an aromatic group resulting from bonding of aromatic groups to each other leading to cyclization; each of T1 and T2 independently is a single bond or a group selected from the group consisting of -(CH2)t-, -CH=CH-, -C=C-, -O-, -S-, -C0102-, -CO-, -S0-, -S02- and -SiE2-; t is an integer of 1 to 20; each of Q1 and Q2 is an alkyl or an aromatic group, provided that these may be bonded with each other to thereby form a ring; E is a hydrogen atom, an alkyl or an aromatic group; and each of m and n is an integer of 0 to 2). 1072155-70-4DP, sulfonated compound TT
- RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (manufacture of solvent-soluble sulfonated polymeric compds. and their intermediates useful for organic electroluminescent devices)

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(manuf. of solvent-sol. sulfonated polymeric compds. and their intermediates useful for org. electroluminescent devices

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2008:608032 CAPLUS Full-text DOCUMENT NUMBER: 148:572612

TITLE: Novel carbazole derivative and use thereof INVENTOR(S): Nakayama, Masami; Tsubaki, Tomoyuki PATENT ASSIGNEE(S): Bando Chemical Industries, Ltd., Japan

SOURCE: PCT Int. Appl., 88pp.

CODEN: PIXXD2 Patent

DOCUMENT TYPE: LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: PATENT INFORMATION:

GI

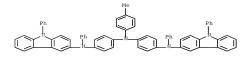
	TENT :				KIN	D	DATE			APPL	ICAT	ION I	NO.		D	ATE	
	2008				A1	_				WO 2	007-	JP72:	246		2	0071	109
	W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BH,	BR,	BW,	BY,	ΒZ,	CA,
		CH,	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DO,	DZ,	EC,	EE,	EG,	ES,	FI,
		GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	KE,	KG,	KM,
		KN,	KP,	KR,	KZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LY,	MA,	MD,	ME,	MG,
		MK,	MN,	MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,
		RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	TJ,	TM,	TN,	TR,
		TT,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,	ZA,	ZM,	ZW					
	RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,
		IS,	IT,	LT,	LU,	LV,	MC,	MT,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,
		ВJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,
		GH,	GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	ΑZ,
		BY,	KG,	KZ,	MD,	RU,	TJ,	TM									
JP	2008	1272	90		A		2008	0605		JP 2	006-	3108	25		2	0061	116
IORIT:	Y APP	LN.	INFO	. :						JP 2	006-	3108	25		A 2	0061	116
HER SO	DURCE	(S):			MAR	PAT	148:	5726	12								

- The carbazole derivative, having ≥2 carbazole structures in the mol., for AB example, I, is prepared The carbazole derivative can form a stable amorphous film by itself at a temperature equal to or higher than ambient temperature, has a high glass transition temperature, and can be suitably used as an organic electronic functional material, such as an electroluminescent material element.
- 1026033-63-5P IΤ

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of heat-resistant carbazole derivs. for electroluminescent materials)

- RN 1026033-63-5 CAPLUS
- 1,4-Benzenediamine, N1-(4-methylphenyl)-N4-phenyl-N4-(9-phenyl-9H-carbazol-3-y1)-N1-[4-[pheny1(9-pheny1-9H-carbazo1-3-y1)amino]pheny1]- (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD, ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 3 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2008:91000 CAPLUS Full-text

DOCUMENT NUMBER: 148:178962

TITLE: Carbazole-containing amine compound and use thereof INVENTOR(S): Yagi, Tadao; Tanaka, Hiroaki; Oryu, Yoshitake; Toba,

Yasumasa; Suda, Yasumasa; Tamano, Michiko

PATENT ASSIGNEE(S): Toyo Ink Manufacturing Co., Ltd., Japan

SOURCE: PCT Int. Appl., 174pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: Japanese FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PAT	ENT 1	10.			KIN	D	DATE			APP	LICAT	ION :	NO.		D	ATE	
						-									-		
WO :	20080	0103	77		A1		2008	0124		WO	2007-	JP62	348		2	0070	619
	W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB	, BG,	BH,	BR,	BW,	BY,	BZ,	CA,
		CH,	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM	, DO,	DZ,	EC,	EE,	EG,	ES,	FI,
		GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU	, ID,	IL,	IN,	IS,	KE,	KG,	KM,
		KN.	KP,	KR,	KZ,	LA,	LC.	LK.	LR,	LS	, LT,	LU,	LY,	MA,	MD,	ME.	MG.
	MK, MN, M					MY,	MZ,	NA,	NG,	NI	, NO,	NZ,	OM,	PG,	PH,	PL,	PT,
	RO, RS, RU					SD,	SE,	SG,	SK,	SL	, SM,	SV,	SY,	TJ,	TM,	TN,	TR,
	TT, TZ, UA				UG,	US,	UZ,	VC,	VN,	ZA	, ZM,	ZW					
	RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE	, ES,	FI,	FR,	GB,	GR,	HU,	IE,
		IS,	IT,	LT,	LU,	LV,	MC,	MT,	NL,	PL	, PT,	RO,	SE,	SI,	SK,	TR,	BF,
		ВJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW	, ML,	MR,	NE,	SN,	TD,	TG,	BW,
		GH,	GM,	KΕ,	LS,	MW,	MZ,	NA,	SD,	SL	, SZ,	TZ,	UG,	ZM,	ZW,	AM,	ΑZ,
		BY,	KG,	KΖ,	MD,	RU,	ΤJ,	TM									
JP 2008044923					A		2008	0228		JΡ	2006-	2503	32		2	0060	915
PRIORITY APPLN. INFO.:										JP	2006-	1999	27		A 2	0060	721
							JP	2006-	2503	32		A 2	0060	915			
										JP	2005-	2945	04		A 2	0051	007

# OTHER SOURCE(S): MARPAT 148:178962

AB Disclosed is a carbazole-containing amine compound which has a high Tg value and is hardly crystallized and therefore probably forms a stable thin film, and which can show excellent properties such as an ability of being operated at a low voltage and long service life when used as a material for an organic EL element.

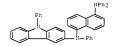
IT 1002763-08-7P 1002763-12-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

RN 1002763-08-7 CAPLUS

CN 1,4-Naphthalenediamine, N1-[9-(2-naphthaleny1)-9H-carbazol-3-y1]-N1,N4,N4triphenyl- (CA INDEX NAME)

RN 1002763-12-3 CAPLUS



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 4 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:1237378 CAPLUS Full-text

DOCUMENT NUMBER: 147:494224

TITLE: Carbazole derivatives, their uses, and organic

electroluminescent devices using them
Nakayama, Masami; Kato, Hideyuki
PATENT ASSIGNEE(S): Bando Chemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1 PATENT INFORMATION:

 PATENT NO.
 KIND
 DATE
 APPLICATION NO.
 DATE

 JP 2007284411
 A
 20071101
 JP 2006-116940
 20060420

 PRIORITY APPLN. INFO::
 JP 2006-116940
 20060420

 OTHER SOURCE(S):
 MARPAT 147:494224

GΙ

- AB Title derive. I [A = H, halo, C1-20 alkyl, C1-20 alkxyl, (un)substituted aryl, (un)substituted heterocyclyl; R1-R6 = H, C1-20 alkyl, C1-20 alkxyl, d1(C1-20 alkyl)amino, (un)substituted aryl, (un)substituted heterocyclyl] are used as hole injecting agents and/or hole transport agents. Also claimed are organic electroluminescent devices having a hole injection layer and/or hole transport layer containing above agents.
- IT 884510-65-0P 953812-97-0P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of bis[phenyl(diphenylaminophenyl)amino]carbazoles and organic electroluminescent devices having hole injection layer and/or hole transport layer containing them)

Ι

- RN 884510-65-0 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

- RN 953812-97-0 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-9-ethyl-N3,N6-diphenyl- (CA INDEX NAME)

L10 ANSWER 5 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:1118739 CAPLUS  $\underline{\text{Full-text}}$ 

DOCUMENT NUMBER: 147:436460

TITLE: Organic light emitting device and flat panel display

device comprising the same

INVENTOR(S): Hwang, Seok--Hwan; Kim, Young-Kook; Kwak, Yoon-Hyun; Lee, Jong-Hvuk; Lee, Kwan-Hee; Chun, Min-Seung

PATENT ASSIGNEE(S): S. Korea

U.S. Pat. Appl. Publ., 49pp., Cont.-in-part of U.S. SOURCE:

Ser. No. 286,421. CODEN: USXXCO

DOCUMENT TYPE:

GI

Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 5 PATENT INFORMATION:

PA'	TENT	NO.			KIN	D	DATE							NO.				TE	
	2007						2007			US	20	07-	8060	39			20	070	529
KR	2005	0976	70		A		2005	1010		KR	20	04-	2287	7			20	040	402
	2006						2006												
	2006						2006	0602		KR	20	04-	9874	7			20	041	129
	7874						2007												
	2005						2005	1006						2					
US	2006	0020	136		A1		2006	0126		US	20	05-	1817	06			20	050	713
US	7431	997			B2		2008	1007											
US	2006	0115	680		A1		2006	0601		US	20	05-	2864	21			20	051	125
	2007													6				060	
KR	8465	86			B1		2008	0716											
JP	2007	3181	01		A		2007	1206		JP	20	07-	1107	46			20	070	419
CN	1010	8330	8		A		2007	1205		CN	20	07-	1010	9285			20	070	529
EP	1862	524			A1		2007	1205		EP	20	07-	1090	66			20	070	529
EP	1862	524			B1		2009	0408											
	R:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	, EE	Ξ,	ES,	FI,	FR,	GB,	GR	, 1	HU,	ΙE,
		IS,	IT,	LI,	LT,	LU,	LV,	MC,	MT,	, NI	Ĺ,	PL,	PT,	RO,	SE,	SI	,	SK,	TR,
		AL,	BA,	HR,	MK,	YU													
KR	2007	1146	69		A		2007	1204		KR	20	07-	7643	6			20	070	730
KR	8466	08			B1		2008	0716											
PRIORIT	Y APP	LN.	INFO	.:						KR	20	004-	2287	7		A	20	040	402
										KR	20	004-	5470	0		A	20	040	714
														7					
														2					
														06					
										US	20	05-	2864	21		A2	20	051:	125
										KR	20	06-	4830	6		A	20	060	529
OTHER S	DURCE	(S):			MAR	PAT	147:	4364	60										

### \* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB An organic light emitting device is described comprising a substrate; a first and a second electrode; one of the electrodes being a reflective electrode, the other being a (semi)transparent; and an organic layer interposed between the electrodes, the organic layer comprising an emission layer, and comprising a compound represented by general formula I, II, and III, where X = C1-C30alkylene or alkenylene, C6-C30 arylene, C2-C30 heteroarylene, C2-C30 hetero ring; R1-R8 = (each independently) H, C1-C30 alkyl, C1-C30 alkoxy, C6-C30 arvl, C6-C30 arvloxy, C2-C30 hetero ring, C5-C30 polycyclic condensed ring, hydroxy, cyano, amino (R1, R2, R3 may bound together to form ring, R4, R5 may bound together to form a ring, two or more of R6, R7, R8 may bound together to form carbon ring); Ar1, Ar2, Ar3 = (each independently) C6-C30 aryl, C2-C30

heteroaryl; Y = (independently) C1-C30 alkyl, C6-C30 aryl, C2-C30 hetero ring; n (independently) = integer of 0-5. A flat panel display device comprising the organic light emitting device is also described.

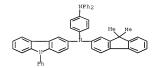
ΙT 951407-79-7

> RL: TEM (Technical or engineered material use); USES (Uses) (organic light emitting device using novel organic materials and flat panel

display device comprising the same)

951407-79-7 CAPLUS RN

CN 1,4-Benzenediamine, N1-(9,9-dimethyl-9H-fluoren-2-yl)-N4,N4-diphenyl-N1-(9phenv1-9H-carbazo1-3-v1)- (CA INDEX NAME)



L10 ANSWER 6 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:619691 CAPLUS Full-text

DOCUMENT NUMBER: 147:41962

TITLE: Diaminoarylene compound having carbazolyl group and

use thereof for electroluminescent element

INVENTOR(S): Yaqi, Tadao; Suda, Yasumasa; Oryu, Yoshitake; Tanaka, Hiroaki; Toba, Yasumasa

PATENT ASSIGNEE(S): Toyo Ink Manufacturing Co., Ltd., Japan

SOURCE: PCT Int. Appl., 193pp.

CODEN: PIXXD2 DOCUMENT TYPE: Patent.

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1 PATENT INFORMATION:

	PA:	ENT :	NO.			KIND DATE			1	APPL	ICAT	ION I	DATE						
	WO	WO 2007063986					A1 2007060			1	WO 2	006-	JP32	20061201					
		W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,	
			CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,	
			GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KM,	KN,	
			KΡ,	KR,	KΖ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	MA,	MD,	MG,	MK,	
			MN,	MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	
			RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	ΤJ,	TM,	TN,	TR,	TT,	
			TZ,	UA,	UG,	US,	UZ,	VC,	VN,	ZA,	ZM,	zw							
		RW:	ΑT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,	
			IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,	ВJ,	
			CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,	GH,	
			GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	BY,	
			KG,	ΚZ,	MD,	RU,	TJ,	TM											
	JP 4211869						B2 20090121				JP 2	007-	5285		2	0061	201		
	KR 2008080513						A 20080904				KR 2	008-	7130		20080530				
	CN 101321728							2008	1210		CN 2	006-	8004		2	0080	502		
PRIO	RIT	APP	LN.	INFO	. :						JP 2	005-	3491	51		A 2	0051	202	

JP 2006-65680 A 20060310 JP 2006-205844 A 20060728 JP 2006-212941 A 20060804 W0 2006-JP324094 W 20061201

OTHER SOURCE(S): MARPAT 147:41962

AB Disclosed is a diaminoarylene compound having a carbazolyl group, which is represented by the general formula (Ar3)(Ar1)N-X-N(Ar2)(Ar4) [wherein Ar1 to Ar4 independently represent a univalent aromatic hydrocarbyl having 6 to 18 carbon atoms which may has a substituent, a univalent heterocyclic group having 2 to 18 carbon atoms which may have a substituent, or a 3-carbazolyl-derived group, provided that at least one of Ar1 to Ar4 represents a 3-carbazolyl-derived group; and X represents a phenanthrene-diyl-derived group which may have a substituent, an o-phenylene-derived group which may have a substituent, last of isclosed is a material for an organic electroluminescence element, which comprises the diaminoarylene compound Further disclosed is an electroluminescence element using the material.

IT 938510-95-3P 938510-99-7P 938511-39-8P 938511-40-1P 938511-41-2P 938511-42-3P 938511-44-5P 938511-45-6P 938511-46-7P

938511-47-8P 938511-48-9P 938511-49-0P 938511-50-3P 938511-51-4P 938511-52-5P

938511-53-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(diaminoarylene compound having carbazolyl group and use thereof for electroluminescent element)

RN 938510-95-3 CAPLUS

CN

1,2-Benzenediamine, N1,N1,N2-triphenyl-N2-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

RN 938510-99-7 CAPLUS

CN 1,2-Benzenediamine, N1,N1,N2-tris([1,1'-biphenyl]-4-yl)-N2-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- RN 938511-39-8 CAPLUS
- CN 1,3-Benzenediamine, N1,N1,N3-triphenyl-N3-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

- RN 938511-40-1 CAPLUS
- CN 2,3-Naphthalenediamine, N2,N2,N3-triphenyl-N3-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

- RN 938511-41-2 CAPLUS
- CN [1,1'-Bipheny1]-3,5-diamine, N3,N3,N5-tripheny1-N5-(9-pheny1-9H-carbazol-3yl)- (CA INDEX NAME)

RN 938511-42-3 CAPLUS

CN 1,2-Benzenediamine, N1-[1,1'-bipheny1]-4-y1-N1,N2-dipheny1-N2-(9-pheny1-9H-carbazol-3-y1)- (CA INDEX NAME)

RN 938511-44-5 CAPLUS

CN 1,2-Benzenediamine, N1-[4-(diphenylamino)phenyl]-N1,N2-diphenyl-N2-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938511-45-6 CAPLUS

CN Benzonitrile, 4-[phenyl[2-[phenyl(9-phenyl-9H-carbazol-3-yl)amino]phenyl]amino]- (CA INDEX NAME)

RN 938511-46-7 CAPLUS

CN 1,2-Benzenediamine, N1-[1,1'-biphenyl]-4-yl-N2-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N1,N2-diphenyl- (CA INDEX NAME)

RN 938511-47-8 CAPLUS

CN 1,2-Benzenediamine, N1-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N1,N2,N2triphenyl- (CA INDEX NAME)

RN 938511-48-9 CAPLUS

CN 1,2-Benzenediamine, N1-(6,9-diphenyl-9H-carbazol-3-yl)-N1,N2,N2-triphenyl-(CA INDEX NAME)

RN 938511-49-0 CAPLUS

CN 1,3-Benzenediamine, N1-[9-(2-naphthalenyl)-9H-carbazol-3-yl]-N1,N3,N3triphenyl- (CA INDEX NAME)

RN 938511-50-3 CAPLUS

CN 1,3-Benzenediamine, N1-2-naphthalenyl-N1,N3-diphenyl-N3-(9-phenyl-9Hcarbazol-3-yl)- (CA INDEX NAME)

938511-51-4 CAPLUS RN

CN 1,3-Benzenediamine, N1-9-phenanthrenyl-N1,N3-diphenyl-N3-(9-phenyl-9Hcarbazol-3-yl)- (CA INDEX NAME)

RN 938511-52-5 CAPLUS

CN 1,3-Benzenediamine, N1-(4-methylphenyl)-N1,N3-diphenyl-N3-(9-phenyl-9Hcarbazo1-3-y1)- (CA INDEX NAME)

CN Benzonitrile, 4-[3-[[3-(diphenylamino)phenyl]phenylamino]-9H-carbazol-9yl]- (CA INDEX NAME)

- IT 938510-47-5 938510-49-7 938510-76-0 938510-77-1 938510-79-3 938510-81-7 938510-82-8 938510-83-9 938510-84-0 938510-85-1 938510-86-2 938510-87-3 938510-88-4 938510-89-5 938510-99-8 938510-91-9 938510-92-0 938510-93-1 938511-77-4 938511-75-2 938511-76-3 938511-77-4 938511-78-5
  - RL: TEM (Technical or engineered material use); USES (Uses) (diaminoarylene compound having carbazolyl group and use thereof for electroluminescent element)
- RN 938510-47-5 CAPLUS
- N 9,10-Phenanthrenediamine, N9,N9,N10-triphenyl-N10-(9-phenyl-9H-carbazol-3-v1)- (CA INDEX NAME)

- RN 938510-49-7 CAPLUS
- CN 9,10-Phenanthrenediamine, N9,N9,N10-tris([1,1'-biphenyl]-4-y1)-N10-(9phenyl-9H-carbazol-3-y1)- (CA INDEX NAME)

RN 938510-76-0 CAPLUS

CN 3,6,9,10-Phenanthrenetetramine, N3,N3,N6,N6,N9,N10-hexaphenyl-N9,N10-bis(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-77-1 CAPLUS

CN 2,7,9,10-Phenanthrenetetramine, N2,N2,N7,N7,N9,N10-hexaphenyl-N9,N10-bis(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-79-3 CAPLUS

CN 9,10-Phenanthrenediamine, N9-[1,1'-bipheny1]-4-y1-N9,N10-dipheny1-N10-(9pheny1-9H-carbazol-3-y1)- (CA INDEX NAME)

- RN 938510-81-7 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-[4-(diphenylamino)phenyl]-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- RN 938510-82-8 CAPLUS
- CN Benzonitrile, 4-[phenyl[10-[phenyl(9-phenyl-9H-carbazol-3-y1)amino]-9-phenanthrenyl]amino]- (CA INDEX NAME)

- RN 938510-83-9 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-[1,1'-biphenyl]-4-yl-N10-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N9,N10-diphenyl- (CA INDEX NAME)

RN 938510-84-0 CAPLUS

CN 9,10-Phenanthrenediamine, N9-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N9,N10,N10-triphenyl- (CA INDEX NAME)

RN 938510-85-1 CAPLUS

CN 9,10-Phenanthrenediamine, N9-(6,9-diphenyl-9H-carbazol-3-yl)-N9,N10,N10-triphenyl- (CA INDEX NAME)

RN 938510-86-2 CAPLUS

RN 938510-87-3 CAPLUS

CN 9,10-Phenanthrenediamine, N9-[9-(2-naphthalenyl)-9H-carbazol-3-yl]N9,N10,N10-triphenyl- (CA INDEX NAME)

RN 938510-88-4 CAPLUS

CN 9,10-Phenanthrenediamine, N9-1-naphthalenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-89-5 CAPLUS

CN 9,10-Phenanthrenediamine, N9-2-naphthalenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-90-8 CAPLUS

CN 9,10-Phenanthrenediamine, N9-9-phenanthrenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-91-9 CAPLUS

CN 9,10-Phenanthrenediamine, N9-9-anthracenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-92-0 CAPLUS

N 9,10-Phenanthrenediamine, N9-(4-methylphenyl)-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-93-1 CAPLUS

CN Benzonitrile, 4-[3-[[10-(diphenylamino)-9-phenanthrenyl]phenylamino]-9Hcarbazol-9-yl]- (CA INDEX NAME)

RN 938511-74-1 CAPLUS

RN 938511-75-2 CAPLUS

CN [1,1':4',1''-Terphenyl]-3,5-diamine,
N3,N3,N5-triphenyl-N5-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938511-76-3 CAPLUS

CN 1,2-Benzenediamine, N1-[9-(1-naphthalenyl)-9H-carbazol-3-yl]-N1,N2,N2triphenyl- (CA INDEX NAME)

RN 938511-77-4 CAPLUS

CN 1,3-Benzenediamine, N1-1-naphthalenyl-N1,N3-diphenyl-N3-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

$$\begin{array}{c} \mathbb{P}^h \\ \mathbb{P}^h \\ \mathbb{P}^h \\ \mathbb{P}^h \end{array}$$

RN 938511-78-5 CAPLUS

CN 1,3-Benzenediamine, N1-9-anthracenyl-N1,N3-diphenyl-N3-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

$$\bigcap_{h}^{\operatorname{Ph}} \bigcap_{h=\operatorname{Ph}}$$

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 7 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:175254 CAPLUS Full-text DOCUMENT NUMBER: 146:238974

TITLE:

Arvlamine compounds which have resistance to repeated oxidation reactions, and light-emitting elements and electronic devices employing the arylamine compounds

Nakashima, Harue; Kawakami, Sachiko

INVENTOR(S): PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Japan

SOURCE: U.S. Pat. Appl. Publ., 48pp. CODEN: USXXCO

DOCUMENT TYPE: LANGUAGE:

Patent English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

		TENT I				KIN	D	DATE				ICAT		DATE						
	US	20070037011						20070215		US 2006-500278 WO 2006-JP315351						20060808				
	WO															BZ, CA, Cl				
		W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,		
			CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,		
			GE,	GH,	GM,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	KE,	KG,	KM,	KN,	KP,	KR,		
			KZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	MA,	MD,	MG,	MK,	MN,	MW.		
			MX,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RS,	RU,	SC,		
			SD,	SE,	SG,	SK,	SL,	SM,	SY,	TJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	US,		
			UZ,	VC,	VN,	ZA,	ZM,	ZW												
		RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,		
			IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,	ΒJ,		
			CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,	GH,		
			GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	BY,		
			KG,	KZ,	MD,	RU,	TJ,	TM												
	JP 2007070352						20070322			JP 2006-217779						2	A, UG, US, R, HU, IE, R, BF, BJ, G, BW, GH, 1, AZ, BY, 20060810			
	CN 101243038					A		2008		CN 2006-80029357				2	20080213					
	KR 2008034191							2008	0418		KR 2008-705376					20080304				
PRIO	RIT	APP:	LN.	INFO	. :						JP 2	005-	2344	32		A 2	0050	812		
											WO 2	006-	JP31	5351	1	vi 2	0060	727		

MARPAT 146:238974

OTHER SOURCE(S):

AB Secondary arylamine compds. having resistance to repeated oxidation reactions are described by the General Formula NH(Ar1)XN(Ar2)Ar3, wherein Ar1 is one of an arvl group having 7 to 25 C atoms and a heteroarvl group having 7 to 25 C atoms, where each of Ar2 and Ar3 is one of an aryl group having 6 to 25 C atoms and a heteroaryl group having 5 to 9 C atoms, and where X is one of a bivalent aromatic hydrocarbon group having 6 to 25 C atoms and a bivalent heterocyclic group having 5 to 10 C atoms. Light-emitting elements and electronic devices employing the arylamine compds. are also discussed.

IT 884510-66-1P 884510-67-2P

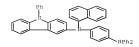
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(arylamine compds. which have resistance to repeated oxidation reactions, and light-emitting elements and electronic devices employing arylamine compds.)

RN 884510-66-1 CAPLUS

CN

1,4-Benzenediamine, N1-1-naphthalenvl-N4,N4-diphenvl-N1-(9-phenvl-9Hcarbazo1-3-y1)- (CA INDEX NAME)



RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1naphthalenyl-9-phenyl- (CA INDEX NAME)

L10 ANSWER 8 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN 2006:542713 CAPLUS Full-text ACCESSION NUMBER:

DOCUMENT NUMBER:

SOURCE:

145:17408

TITLE: INVENTOR(S): Light emitting element that includes a mixed carbazole

derivative-transition metal oxide hole transport layer Nakashima, Harue; Kawakami, Sachiko; Kumaki, Daisuke; Seo, Satoshi; Ikeda, Hisao; Sakata, Junichiro; Iwaki,

Yuji

PATENT ASSIGNEE(S):

Semiconductor Energy Laboratory Co., Ltd., Japan

PCT Int. Appl., 145 pp. CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PA1	ENT I				KIND DATE				- 2	APPL	DATE						
WO					A1		20060608		1	WO 2	2	0051	128				
	W:	AE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH
		CN,	co,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KM,	KN,	KP,	KR
		ΚZ,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	MA,	MD,	MG,	MK,	MN,	MW,	MX
		MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE
		SG,	SK,	SL,	SM,	SY,	ΤJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	US,	UZ,	VC
		VN,	YU,	ZA,	ZM,	ZW											
	RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	ΙE
		IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,	BJ
		CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,	GH
		GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	BY
		KG,	KZ,	MD,	RU,	ΤJ,	TM										
CN	1010	6585	8		A		2007	1031		CN 2	20051128						
JΡ	2006	3034	21		A		2006	1102		JP 2	005-	20051130					

US 20090058267	A1	20090305	US	2006-584308		20060623
KR 2007090215	A	20070905	KR	2007-714544		20070626
PRIORITY APPLN. INFO.:			JP	2004-347518	A	20041130
			JP	2005-84566	A	20050323
			WO	2005-JP22240	W	20051128

OTHER SOURCE(S): MARPAT 145:17408

One object of the present invention is to provide a light emitting element AB that includes an organic compound and an inorg, compound and has low driving voltage. The light emitting element of the invention includes a plurality of layers between a pair of electrodes, wherein the plurality of layers includes a layer that contains a carbazole derivative represented by a general formula (I; R1 = e.g., H, alkyl, aryl; R2 = H, alkyl, NAr4YNAr5Ar6; Ar1-Ar6 = aryl, heteroaryl; X, Y = bivalent aromatic hydrocarbon or bivalent heterocycle ) and an inorg, compound exhibiting an electron accepting property with respect to the carbazole derivative By utilizing this structure, electrons are transported between the carbazole derivative and the inorg, compound and carriers are internally generated, and hence, the driving voltage of the light emitting element can be reduced. Thus, e.g., coupling of 3,6-diiodo-9phenylcarbazole (preparation given) with PhNHC6H4-p-NPh2 (preparation given) afforded target carbazole II (75% yield). A 50 nm film containing II and molybdenum oxide (1:1.5 molar ratio) exhibited a charge-transfer absorption band (absent in either component of the film taken individually) representing hole generation in II and electron acceptance by molybdenum oxide; consequently, the driving voltage of a light-emitting element can be reduced because of this internal carrier generation.

IT 884510-64-9P 884510-65-0P 884510-66-1P

884510-67-2P

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses) (light emitting element that includes a mixed carbazole

derivative-transition metal oxide hole transport layer)

RN 884510-64-9 CAPLUS

CN 1,4-Benzenediamine, N1,N1,N4-triphenyl-N4-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

RN 884510-65-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

RN 884510-66-1 CAPLUS

CN 1,4-Benzenediamine, N1-1-naphthalenyl-N4,N4-diphenyl-N1-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)

REFERENCE COUNT:

THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 9 OF 14 CAPLUS COPYRIGHT 2009 ACS ON STN ACCESSION NUMBER: 2006:380901 CAPLUS Full-text DOCUMENT NUMBER: 144:422228

11

TITLE:

Carbazole derivative, and light emitting element and light emitting device using the carbazole derivative Nakashima, Harue; Kawakami, Sachiko; Kumaki, Daisuke Semiconductor Energy Laboratory Co., Ltd., Japan

INVENTOR(S): PATENT ASSIGNEE(S):

PCT Int. Appl., 142 pp.

SOURCE:

CODEN: PIXXD2

DOCUMENT TYPE: LANGUAGE:

Pat.ent. English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	TENT :																ATE	
	2006																0051	014
	W:	ΑE,	AG,	AL,	AM,	ΑT,	AU,	AZ,	ΒA,	BI	в,	BG,	BR,	BW,	BY,	ΒZ,	CA,	CH,
		CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	D	Z,	EC,	EE,	EG,	ES,	FI,	GB,	GD,
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	_ I:	S,	JP,	KE,	KG,	KM,	KP,	KR,	ΚZ,
		LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	M	Α,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,
		NA,	NG,	ΝI,	NO,	NZ,	OM,	PG,	PH,	- P1	L,	PT,	RO,	RU,	SC,	SD,	SE,	SG,
		SK,	SL,	SM,	SY,	ТJ,	TM,	TN,	TR,	T.	Γ,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,
		YU,	ZA,	ZM,	zw													
	RW:	ΑT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	E	Ε,	ES,	FI,	FR,	GB,	GR,	HU,	ΙE,
		IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	P.	Γ,	RO,	SE,	SI,	SK,	TR,	BF,	ΒJ,
		CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	M	L,	MR,	ΝE,	SN,	TD,	TG,	BW,	GH,
		GM,	ΚE,	LS,	MW,	ΜZ,	NA,	SD,	SL,	S	Z,	TZ,	UG,	ZM,	ZW,	AM,	ΑZ,	ΒY,
		KG,	ΚZ,	MD,	RU,	ТJ,	TM											
EP	1805						2007	0711		EΡ	20	05-	7957	74		2	0051	014
					GB,													
	1010							0919										
	2006													32			0051	
US	2008	0284	328		A1		2008	1120		US	20	06-	5830	28		2	0060	615
PRIORIT	Y APP	LN.	INFO	. :						JP	20	04-	3042	25		A 2	0041	019
										JP	20	04-	3333	44		A 2	0041	117
										JP	20	05-	8453	3		A 2	0050	323
										WO	20	05-	JP19	349		W 2	0051	014
OTHER S	OURCE	(S):			MAR	PAT	144:	42222	28									

The title carbazole derivs. are described by the general formula I (R1 = H, AB C1-6 alkyl, C6-25 aryl, C5-9 heteroaryl, arylalkyl, or C1-7 acyl; R2 = H, C1-6 alkyl, or -N(Ar4)-Y-N(Ar5)Ar6; Ar1-6 = independently selected C6-25 aryl and/or C5-9 heteroaryl; and X and Y = independently selected C6-25 bivalent aromatic hydrocarbon and/or C5-10 bivalent heterocyclic group). Lightemitting elements incorporating the derivs., devices (e.g., displays) incorporating the elements, and electronic apparatus employing the elements, are also described.

884510-64-9P 884510-65-0P 884510-66-1P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

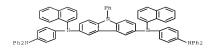
(carbazole derivative, and light emitting element and light emitting device using carbazole derivative)

- RN 884510-64-9 CAPLUS
  - CN 1,4-Benzenediamine, N1,N1,N4-triphenyl-N4-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

- RN 884510-65-0 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

- RN 884510-66-1 CAPLUS
- CN 1,4-Benzenediamine, N1-1-naphthalenyl-N4,N4-diphenyl-N1-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- IT 884510-67-2P
  - RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
  - (carbazole derivative, and light emitting element and light emitting device using carbazole derivative)
- RN 884510-67-2 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 10 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2005:1077993 CAPLUS Full-text

DOCUMENT NUMBER: 143:376607

TITLE: Fluorene-based compound and organic electroluminescent

display device using the same

INVENTOR(S): Hwang, Seok-Hwan; Lee, Seok-Jong; Kim, Young-Kook;

Yang, Seung-Gak; Kim, Hee-Yeon
PATENT ASSIGNEE(S): S. Korea

PATENT ASSIGNEE(S): S. Korea
SOURCE: U.S. Pat. Appl. Publ., 31 pp.

CODEN: USXXCO
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 20050221124 KR 2005097670 JP 2005290000 CN 1702065 US 20070231503 PRIORITY APPLN. INFO.:	A1 A A A	20051006 20051010 20051020 20051130 20071004	US 2005-97182 KR 2004-22877 JP 2005-106551 CN 2005-10069765 US 2007-806039 KR 2004-22877	A	20050404 20040402 20050401 20050401 20070529 20040402
PRIORITI APPLN. INFO.:			KR 2004-54700 KR 2004-98747 US 2005-97182 US 2005-181706 US 2005-286421	A A A2 A2	20040402 20040714 20041129 20050404 20050713 20051125 20060529

OTHER SOURCE(S): MARPAT 143:376607

GI

AB A fluorene-based compound represented by the general formula I where Z is represented by the general formula II, III, and IV, where Ar is a substituted or unsubstituted aryl group or a group by the general formula V (X = N, B or P; Y = a single bond, a (un)substituted C1-C30 alkylene group, a (un)substituted C6-C30 arylene group, a (un)substituted C4-C30 heterocyclic group; RI, RZ, R3 = H, (un)substituted C1-C30 alkyl group, a (un)substituted C6-C30 aryl group, a (un)substituted C4-C30 heterocyclic group, a (un)substituted C4-C30 heterocyclic group, a (un)substituted C6-C30 condensed polycyclic group, where neighboring groups among RI, RZ and R3 are connected to each other to form a (un)saturated carbon

<sup>\*</sup> STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

ring, R', R'' = H, a hydroxy group, a (un)substituted C1-C30 alkyl group, a (un)substituted C6-C30 aryl group) is described. An organic electroluminescent display device comprising two electrodes; and an organic layer interposed between the electrodes, wherein the organic layer comprises the fluorene-based compound is also described.

IT 866119-23-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fluorene-based compound and organic electroluminescent display device using

the same)

RN 866119-23-5 CAPLUS

N 1,4-Benzenediamine, N1-(9,9-dimethyl-9H-fluoren-3-yl)-N4,N4-diphenyl-N1-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

L10 ANSWER 11 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2005:1042363 CAPLUS Full-text

DOCUMENT NUMBER:

143:356288

TITLE:

Phenyl carbazole derivatives and organic electroluminescent devices using the same

INVENTOR(S):

Kim, Ji-Eun; Lee, Jae-Chol; Kim, Kong-Kyeom; Bae, Jae-Soon; Jang, Jun-Gi; Jeon, Sang-Young; Kang, Min-Soo; Cho, Wook-Dong; Jeon, Byung-Sun; Kim,

Yeon-Hwan LG Chem, Ltd., S. Korea

PATENT ASSIGNEE(S): SOURCE: DOCUMENT TYPE:

PCT Int. Appl., 126 pp.

CODEN: PIXXD2

Patent

LANGUAGE: English

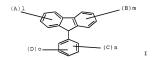
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PA:	TENT :	NO.			KIN	D	DATE			APPL	ICAT	I NOI	NO.		D	ATE	
						-											
WO	2005	0905	12		A1		2005	0929		WO 2	005-	KR79	4		2	0050	318
	W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,
		CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KP,	KZ,	LC,	LK,
		LR,	LS,	LT,	LU,	LV,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NA,	NI,	NO,
		NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SY,
		TJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	UZ,	VC,	VN,	YU,	ZA,	ZM,	ZW	
	RW:	BW,	GH,	GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,
		AZ,	BY,	KG,	KZ,	MD,	RU,	TJ,	TM,	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,
		EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,	IS,	IT,	LT,	LU,	MC,	NL,	PL,	PT,
		RO,	SE,	SI,	SK,	TR,	BF,	BJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,
		MR,	NE,	SN,	TD,	TG											
KR	2005	1180	98		A		2005	1215		KR 2	004-	1163	88		2	0041	230

US	2005	0225	235		A1		2005	1013		US	2005-	8336	0			20050	318
KR	2006	04442	24		A		2006	0516		KR	2005-	2276	2			20050	318
EP	1725	632			A1		2006	1129		EP	2005-	7334	37			20050	318
	R:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EF	, ES,	FI,	FR,	GB,	GR	HU,	ΙE,
		IS,	IT,	LI,	LT,	LU,	MC,	NL,	PL,	P7	, RO,	SE,	SI,	SK,	TR		
CN	1906	268			A		2007	0131		CN	2005-	8000	1667			20050	318
JP	2007	5204	70		T		2007	0726		JΡ	2006-	5468	60			20050	318
IN	2006	KN01	538		A		2007	0511		IN	2006-	KN16	38			20060	613
PRIORIT	Y APP	LN.	INFO	. :						KR	2004-	1887	7		Α :	20040	319
										KR	2004-	1163	88		Α :	20041	230
										WO	2005-	KR79	4		W :	20050	318
OTHER S	DURCE	(S):			MARE	PAT	143:	3562	38								

OTHER SOURCE(S): MARPAT 143:35628



- AB N-Ph carbazole derivs. are claimed which are described by the general formula I (A = -R1N(R2) -, or -R1N(R2) -Ar -; B = -R3N(R4) -, or -R3N(R4) -Ar -; C = -R3N(R4) -R3N(R5N(R6) -, or -R5N(R6) -Ar-; D = H, -R7N(R8) -, or -R9N(R10) -Ar-; R1-10 = independently selected group each comprising only once or repeatedly ≥2 times, ≥1 of H, C1-20 aliphatic hydrocarbon, aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy, or amino group, silicon group having an aromatic substituent; heterocyclic aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy or amino group, thiophene group substituted with a C1-20 hydrocarbon or C6-24 aromatic hydrocarbon; and a boron group substituted with an aromatic hydrocarbon; Ar = an aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy, or amino group; and  $1 \ge 1$ ;  $m \ge 1$ ;  $n \ge 1$ ; and  $o \ge 0$ ; with the restriction that the compound represented by formula I wherein R1-6 = H simultaneously and D also = H is excluded). Organic electroluminescent devices using the compds., especially in hole-injecting, hole-transporting, or light-emitting layers, are also described.
- IT 865596-39-0 865596-40-3
  - RL: DEV (Device component use); USES (Uses)
  - (Ph carbazole derivs. and organic electroluminescent devices using them)
- RN 865596-39-0 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6,9-tris[4-(diphenylamino)phenyl]-N3,N6-diphenyl- (CA INDEX NAME)

RN 865596-40-3 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-9-[4-(1naphthalenylphenylamino)phenyl]-N3,N6-diphenyl- (CA INDEX NAME)

REFERENCE COUNT: THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 12 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN 2005:781000 CAPLUS Full-text ACCESSION NUMBER:

DOCUMENT NUMBER: 143:396220

TITLE: Efficient UV-sensitive organic photovoltaic devices

using a starburst amine as electron donor

AUTHOR(S): Li, Jiuyan; Lee, Chun-Sing; Lee, Shuittong CORPORATE SOURCE: Center of Super-Diamond & Advanced Films (COSDAF) and

Dept. of Physics and Materials Sciences, City

University of Hong Kong, Hong Kong SAR, Peop. Rep.

China

SOURCE: Journal of Materials Chemistry (2005), 15(32),

3268-3271

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Organic photovoltaic devices using starburst amine PCATA (triphenylamine with carbazole substituents) as the electron donor laver gave a quantum efficiency of up to 21.7% at short-circuit conditions, which is higher than those reported for UV-sensitive organic PV cells.

847158-26-3

RL: DEV (Device component use); PRP (Properties); USES (Uses) (electron donor layer; UV-sensitive photovoltaic devices using starburst triphenylamine derivative as electron donor layer)

RN 847158-26-3 CAPLUS

CN 1,4-Benzenediamine, N1-(9-ethyl-9H-carbazol-3-yl)-N4,N4-bis[4-[(9-ethyl-9H- carbazol-3-v1)(3-methylphenyl)aminolphenyl]-N1-(3-methylphenyl)- (CA INDEX NAME)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 13 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN 2005:12250 CAPLUS Full-text ACCESSION NUMBER:

DOCUMENT NUMBER: 142:287529

TITLE . Novel Starburst Molecule as a Hole Injecting and Transporting Material for Organic Light-Emitting Devices

AUTHOR(S):

Li, Jiuyan; Ma, Chunwah; Tang, Jianxin; Lee,

Chun-Sing; Lee, Shuittong

CORPORATE SOURCE: Center of Super-Diamond and Advanced Films (COSDAF) and Department of Physics and Materials Sciences, City

University of Hong Kong, Hong Kong, Hong Kong SOURCE: Chemistry of Materials (2005), 17(3), 615-619

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

The authors report the synthesis of a novel starburst mol., 4,4',4''-tris(N-3methylphenyl-N-(9-ethylcarbazyl-3)amino) triphenylamine (PCATA), and its application in organic light-emitting devices (OLEDs). The introduction of PCATA into the standard NPB/Alg3 OLED as the hole injecting and transporting layer dramatically enhanced the device efficiency to 5.7 cd/A and 2.2 lm/W, which are a factor of 2 higher than those of the standard OLED without the PCATA layer. The performance enhancement is attributed to a better balance of hole and electron injection in the PCATA-added OLED.

ΙT 847158-26-3P

RL: DEV (Device component use); PNU (Preparation, unclassified); PRP

(Properties); PREP (Preparation); USES (Uses)

(PCATA; novel starburst mol. as a hole injecting and transporting

material for organic light-emitting devices)

847158-26-3 CAPLUS

1,4-Benzenediamine, N1-(9-ethvl-9H-carbazol-3-vl)-N4,N4-bis[4-[(9-ethvl-9Hcarbazol-3-yl) (3-methylphenyl) amino]phenyl]-N1-(3-methylphenyl)- (CA INDEX NAME)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD, ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 14 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2003:532189 CAPLUS Full-text

DOCUMENT NUMBER: 139:92577

TITLE: Organic EL device

INVENTOR(S): Lin, Tung-Shen; Yeh, Kun-Tay
PATENT ASSIGNEE(S): Lightronik Technology Inc., Taiwan

SOURCE: U.S. Pat. Appl. Publ., 13 pp. CODEN: USXXCO

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030129448	A1	20030710	US 2001-982011	20011019
US 6602619	B2	20030805		
PRIORITY APPLN. INFO.:			US 2001-982011	20011019
OTHER SOURCE(S):	MARPAT	139:92577		
GI				

- AB An organic EL device which contains an anode, a cathode, and at least one organic thin-file layer including a light emitting layer which contains a compound represented I and II, wherein Rl represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, a substituted or unsubstituted amino group, a substituted or unsubstituted aryloxy group, or a substituted or unsubstituted aryloxy group, are substituted or unsubstituted aryloxy group, and Rx is 21 functional groups represented by a Hatom, halogen atom, nitro group, cyano group, carboxyl group, or Rl. Any two Rx groups may form a ring. X represents O atom, N atom and S atom. A blue organic EL device can be provided according to the present invention.
- IT 556826-27-8 556826-28-9 556826-29-0
  RL: DEV (Device component use); USES (Uses)

(organic EL device with N-substituted carbazole in light-emitting laver)

RN 556826-27-8 CAPLUS

CN 1,4-Benzenediamine, N1-[6-(1H-benzimidazo1-2-y1)-9-ethyl-9H-carbazo1-3-y1]N1,N4,N4-tris(4-methylphenyl)- (CA INDEX NAME)

RN 556826-28-9 CAPLUS

CN 1,4-Benzenediamine, N1-[6-[5-(1,1-dimethylethyl)-2-benzoxazolyl]-9-ethyl-9H-carbazol-3-yl]-N1,N4,N4-tris(4-methylphenyl)- (CA INDEX NAME)

CN 1,4-Benzenediamine, N1-[6-(2-benzothiazoly1)-9-ethy1-9H-carbazol-3-y1]-N1, N4, N4-tris(4-methylphenyl) - (CA INDEX NAME)

Uploading C:\Program Files\STNEXP\Oueries\10583028#2.str 21 20 13

25

chain nodes :

15 16 17 18 19 20 21 22 23 24 25 27

ring nodes : 1 2 3 4 5 6 7 8 9 10 11 12 13

chain bonds :

1-22 3-20 4-21 7-23 10-25 11-24 12-15 15-19 15-27 16-18 16-17 16-27 ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-13 6-8 7-8 7-12 8-9 9-10 9-13 10-11 11-12

exact/norm bonds :

5-13 6-8 9-13 12-15

exact bonds :

1-22 3-20 4-21 7-23 10-25 11-24 15-19 15-27 16-18 16-17 16-27 normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

G1:Cb, Ak, C, H

G2:Cb, Hv

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:Atom 18:Atom 19:Atom 20:CLASS 21:CLASS 22:CLASS

23:CLASS 24:CLASS 25:CLASS 27:Atom

Generic attributes :

17:

Saturation : Unsaturated 18: Saturation : Unsaturated 19: Saturation : Unsaturated 19: Saturation : Unsaturated 27: Saturation : Unsaturated 27: Saturation : Unsaturated

## L1 STRUCTURE UPLOADED

=> d l1 L1 HAS NO ANSWERS L1 STR

H H H Ch Ch Ch

G2 Cb, Hy

Structure attributes must be viewed using STN Express query preparation.

=> s 11

SAMPLE SEARCH INITIATED 09:27:21 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 5979 TO ITERATE
L4 15 L3

=> d ibib abs hitstr 1-15

L4 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2008:1282001 CAPLUS Full-text

DOCUMENT NUMBER: 149:494318

TITLE: Sulfonated polymeric compound, its intermediate, and

organic electroluminescent device containing the

compound

INVENTOR(S): Sekiguchi, Michiru; Togashi, Kazuhiko

PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan SOURCE: PCT Int. Appl., 165pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2008126393	A1	20081023	WO 2008-JP861	20080403

```
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
             CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES,
             FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE,
             KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
            ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH,
             PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM,
             TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,
             IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK,
             TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD,
             TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
             AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
PRIORITY APPLN. INFO.:
                                            JP 2007-98103
                                                                A 20070404
GI
```

A sulfonated polymeric compound, and its intermediate, which sulfonated AB polymeric compound is characterized by having the structure resulting from introduction of a sulfo group in a polymeric compound having, in its polymer chain, ≥1 of the repeating units (I) (wherein each of Z1 to Z4 is a substituent; each of p1 and p2 is an integer of 0 to 5; each of p3 and p4 is an integer of 0 to 4; each of X1 to X4 is a monovalent aromatic group, provided that X1 and X2, and X3 and X4, may be bonded with each other to thereby form a ring; Y is a bivalent aromatic group; each of Ar1 to Ar4 independently is a bivalent aromatic group, provided that the bivalent aromatic group may be an aromatic group resulting from bonding of aromatic groups to each other leading to cyclization; each of T1 and T2 independently is a single bond or a group selected from the group consisting of -(CH2)t-, -CH=CH-, -C=C-, -O-, -S-, -C0102-, -CO-, -SO-, -S02- and -SiE2-; t is an integer of 1 to 20; each of Q1 and Q2 is an alkyl or an aromatic group, provided that these may be bonded with each other to thereby form a ring; E is a hydrogen atom, an alkyl or an aromatic group; and each of m and n is an integer of 0 to 2).

IT 1072155-70-4DP, sulfonated compound

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of solvent-soluble sulfonated polymeric compds. and their intermediates useful for organic electroluminescent devices)

RN 1072155-70-4 CAPLUS

CN Poly[[9-(9,9-dimethyl-9H-fluoren-2-yl)-9H-carbazole-3,6-diyl][[4-(diphenylamino)phenyl]iminoj-1,4-phenylene(3,4-diphenyl-2,5-thiophenediyl)-1,4-phenylene[[4-(diphenylamino)phenyl]iminoj] (CA INDEX NAME)

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(manuf. of solvent-sol. sulfonated polymeric compds. and their intermediates useful for org. electroluminescent devices

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2008:608032 CAPLUS Full-text

DOCUMENT NUMBER: 148:572612

TITLE: Novel carbazole derivative and use thereof INVENTOR(S): Nakayama, Masami; Tsubaki, Tomoyuki

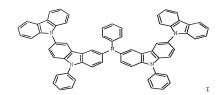
PATENT ASSIGNEE(S): Bando Chemical Industries, Ltd., Japan SOURCE: PCT Int. Appl., 88pp.

CODEN: PIXXD2

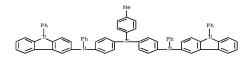
DOCUMENT TYPE: Patent LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1 PATENT INFORMATION:

PATENT	NO.			KIN	D	DATE			APPL			NO.		D	ATE	
					_	2000	0500								0021	100
WO 2008	10599	43		AI		2008	0522		WO Z	00/-	JP /2.	246		2	00/1	109
W:	ΑE,	AG,	AL,	AM,	ΑT,	AU,	AZ,	BA,	BB,	BG,	BH,	BR,	BW,	BY,	BZ,	CA,
	CH,	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DO,	DZ,	EC,	EE,	EG,	ES,	FI,
	GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	KE,	KG,	KM,
	KN,	KP,	KR,	KZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LY,	MA,	MD,	ME,	MG,
	MK,	MN,	MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,
	RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	ТJ,	TM,	TN,	TR,
	TT,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,	ZA,	ZM,	ZW					
RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,
	IS,	IT,	LT,	LU,	LV,	MC,	MT,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,
	ВJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,
	GH,	GM,	KΕ,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,
	BY,	KG,	ΚZ,	MD,	RU,	ТJ,	TM									
JP 2008	1272	90		A		2008	0605		JP 2	006-	3108	25		2	0061	116
PRIORITY APE	LN.	INFO	. :						JP 2	006-	3108	25	- 2	A 2	0061	116
OTHER SOURCE	(S):			MAR	PAT	148:	5726	12								



- AB The carbazole derivative, having ≥2 carbazole structures in the mol., for example, I, is prepared The carbazole derivative can form a stable amorphous film by itself at a temperature equal to or higher than ambient temperature, has a high glass transition temperature, and can be suitably used as an organic electronic functional material, such as an electroluminescent material element.
- IT 1026033-63-5P RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of heat-resistant carbazole derivs. for electroluminescent
- RN 1026033-63-5 CAPLUS
  CN 1,4-Benzenediamine, N1-(4-methylphenyl)-N4-phenyl-N4-(9-phenyl-9H-carbazol3-yl)-N1-[4-[phenyl(9-phenyl-9H-carbazol-3-yl)amino]phenyl]- (CA INDEX



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2008:91000 CAPLUS Full-text

DOCUMENT NUMBER: 148:178962

materials)

NAME)

TITLE: Carbazole-containing amine compound and use thereof INVENTOR(S): Yagi, Tadao; Tanaka, Hiroaki; Oryu, Yoshitake; Toba,

Yasumasa; Suda, Yasumasa; Tamano, Michiko

PATENT ASSIGNEE(S): Toyo Ink Manufacturing Co., Ltd., Japan

SOURCE: PCT Int. Appl., 174pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2

PATENT				KIN		DATE			APPL					_	ATE	
WO 2008																
W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BH,	BR,	BW,	BY,	BZ,	CA,
	CH,	CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DO,	DZ,	EC,	EE,	EG,	ES,	FI,
	GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	KE,	KG,	KM,
	KN,	KP,	KR,	KZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LY,	MA,	MD,	ME,	MG.
	MK,	MN,	MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT.
	RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	ΤJ,	TM,	TN,	TR.
	TT,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,	ZA,	ZM,	ZW					
RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	ΙE
	IS,	IT,	LT,	LU,	LV,	MC,	MT,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,
	ВJ,	CF,	CG,	CI,	CM,	GΑ,	GN,	GQ,	GW,	ML,	MR,	ΝE,	SN,	TD,	TG,	BW,
	GH,	GM,	ΚE,	LS,	MW,	MZ,	NΑ,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,
	BY,	KG,	ΚZ,	MD,	RU,	TJ,	TM									
JP 2008	0449	23		A		2008	0228		JP 2	006-	2503	32		2	0060	915
PRIORITY APP	LN.	INFO	.:						JP 2					A 2	0060	721
							JP 2					-	0060			
									JP 2	005-	2945	04		A 2	0051	007

## OTHER SOURCE(S): MARPAT 148:178962

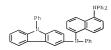
AB Disclosed is a carbazole-containing amine compound which has a high Tg value and is hardly crystallized and therefore probably forms a stable thin film, and which can show excellent properties such as an ability of being operated at a low voltage and long service life when used as a material for an organic EL element.

- IT 1002763-08-7P 1002763-12-3P
  - RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(hight Tg carbazole-containing amine compound used as charge transport material in electroluminescent device)

- RN 1002763-08-7 CAPLUS
- CN 1,4-Naphthalenediamine, N1-[9-(2-naphthalenyl)-9H-carbazol-3-yl]-N1,N4,N4triphenyl- (CA INDEX NAME)

- RN 1002763-12-3 CAPLUS
- CN 1,5-Naphthalenediamine, N1,N1,N5-triphenyl-N5-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:1237378 CAPLUS Full-text

DOCUMENT NUMBER: 147:494224

TITLE: Carbazole derivatives, their uses, and organic

electroluminescent devices using them
Nakayama, Masami; Kato, Hideyuki
PATENT ASSIGNEE(S): Bando Chemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16pp.

CÔDEN: JKXXAF
DOCUMENT TYPE: Patent

LANGUAGE: Japanese FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

APPLICATION NO. DATE

JP 2006-116940 20060420

JP 2006-116940 20060420

OTHER SOURCE(S): MARPAT 147:494224

GI

AB Title derivs. I [A = H, halo, C1-20 alkyl, C1-20 alkoxy, (un)substituted aryl, (un)substituted heterocyclyl; R1-R6 = H, C1-20 alkyl, C1-20 alkoxy, di(C1-20 alkyl)amino, (un)substituted aryl, (un)substituted heterocyclyl] are used as hole injecting agents and/or hole transport agents. Also claimed are organic electroluminescent devices having a hole injection layer and/or hole transport layer containing above agents.

IT 884510-65-0P 953812-97-0PB

RL: SPN (Synthetic preparation); TEM (Technical or engineered material

use); PREP (Preparation); USES (Uses)

(preparation of bis[phenyl(diphenylaminophenyl)amino]carbazoles and organic electroluminescent devices having hole injection layer and/or hole transport layer containing them)

RN 884510-65-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

RN 953812-97-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-9-ethyl-N3,N6-diphenyl- (CA INDEX NAME)

L4 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:1118739 CAPLUS Full-text

DOCUMENT NUMBER: 147:436460

TITLE: Organic light emitting device and flat panel display

device comprising the same

INVENTOR(S): Hwang, Seok--Hwan; Kim, Young-Kook; Kwak, Yoon-Hyun;

Lee, Jong-Hyuk; Lee, Kwan-Hee; Chun, Min-Seung

PATENT ASSIGNEE(S): S. Korea

SOURCE: U.S. Pat. Appl. Publ., 49pp., Cont.-in-part of U.S.

Ser. No. 286,421. CODEN: USXXCO

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 5

PATENT INFORMATION:

PA:	TENT NO.	KIND	DATE	API	PLICATION NO.	DATE
US	20070231503	A1	20071004	US	2007-806039	20070529
KR	2005097670	A	20051010	KR	2004-22877	20040402
KR	2006005755	A	20060118	KR	2004-54700	20040714
KR	2006059613	A	20060602	KR	2004-98747	20041129
KR	787425	В1	20071226			
US	20050221124	A1	20051006	US	2005-97182	20050404
US	20060020136	A1	20060126	US	2005-181706	20050713
US	7431997	B2	20081007			
US	20060115680	A1	20060601	US	2005-286421	20051125
KR	2007114562	A	20071204	KR	2006-48306	20060529

KR	8465	86			В1		2008	0716											
JP	2007	3181	01		A		2007	1206		JΡ	20	07-	1107	46			200	704	119
CN	1010	8330	8		A		2007	1205		CN	20	07-	1010	9285			200	705	29
EP	1862	524			A1		2007	1205		EP	20	07-	1090	66			200	705	29
EP	1862	524			B1		2009	0408											
	R:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EF	Ξ,	ES,	FI,	FR,	GB,	GR	, F	ΙU,	IE,
		IS,	IT,	LI,	LT,	LU,	LV,	MC,	MT,	NI	٠,	PL,	PT,	RO,	SE,	SI	, 5	K,	TR,
		AL,	BA,	HR,	MK,	YU													
KR	2007	1146	69		A		2007	1204		KR	20	07-	7643	6			200	707	/30
KR	8466	08			В1		2008	0716											
PRIORITY	APP	LN.	INFO	. :						KR	20	04-	2287	7		A	200	404	02
										KR	20	04-	5470	0		A	200	407	114
										KR	20	04-	9874	7		A	200	411	29
										US	20	05-	9718	2		A2	200	504	04
										US	20	05-	1817	06		A2	200	507	113
										US	20	05-	2864	21		A2	200	511	.25
										KR	20	06-	4830	6		A	200	605	29
OTHER SO	DURCE	(S):			MAR	PAT	147:	4364	60										

- \* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY AVAILABLE VIA OFFLINE PRINT \*
- An organic light emitting device is described comprising a substrate; a first AB and a second electrode; one of the electrodes being a reflective electrode, the other being a (semi)transparent; and an organic layer interposed between the electrodes, the organic layer comprising an emission layer, and comprising a compound represented by general formula I, II, and III, where X = C1-C30 alkylene or alkenylene, C6-C30 arylene, C2-C30 heteroarylene, C2-C30 hetero ring; R1-R8 = (each independently) H, C1-C30 alkyl, C1-C30 alkoxy, C6-C30 aryl, C6-C30 aryloxy, C2-C30 hetero ring, C5-C30 polycyclic condensed ring, hydroxy, cyano, amino (R1, R2, R3 may bound together to form ring, R4, R5 may bound together to form a ring, two or more of R6,R7, R8 may bound together to form carbon ring); Ar1, Ar2, Ar3 = (each independently) C6-C30 aryl, C2-C30 heteroarv1; Y = (independently) C1-C30 alkyl, C6-C30 arv1, C2-C30 hetero ring; n (independently) = integer of 0-5. A flat panel display device comprising the organic light emitting device is also described.
- ΙT 951407-79-7

GI

RL: TEM (Technical or engineered material use); USES (Uses)

(organic light emitting device using novel organic materials and flat panel display device comprising the same)

951407-79-7 CAPLUS RN

CN 1,4-Benzenediamine, N1-(9,9-dimethyl-9H-fluoren-2-yl)-N4,N4-diphenyl-N1-(9phenyl-9H-carbazol-3-vl)- (CA INDEX NAME)

L4 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:619691 CAPLUS Full-text

DOCUMENT NUMBER: 147:41962

TITLE: Diaminoarylene compound having carbazolyl group and use thereof for electroluminescent element

INVENTOR(S): Yaqi, Tadao; Suda, Yasumasa; Orvu, Yoshitake; Tanaka,

APPLICATION NO.

DATE

Hiroaki: Toba, Yasumasa

Toyo Ink Manufacturing Co., Ltd., Japan PATENT ASSIGNEE(S):

Japanese

KIND DATE

SOURCE: PCT Int. Appl., 193pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGHAGE . FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION: PATENT NO

-								DILLE				DI CITT	1011			-		
7	40	2007	0639	 86		A1	_	2007	0607		WO :	2006-	JP32	4094		2	0061	201
		W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB	, BG,	BR,	BW,	BY,	BZ,	CA,	CH,
			CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ	, EC,	EE,	EG,	ES,	FI,	GB,	GD,
			GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL	, IN,	IS,	JP,	KE,	KG,	KM,	KN,
			KP,	KR,	ΚZ,	LA,	LC,	LK,	LR,	LS,	LT	, LU,	LV,	LY,	MA,	MD,	MG,	MK,
			MN,	MW,	MX,	MY,	MZ,	NA,	NG,	NI,	NO	, NZ,	OM,	PG,	PH,	PL,	PT,	RO,
			RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM	, SV,	SY,	ΤJ,	TM,	TN,	TR,	TT,
			TZ,	UA,	UG,	US,	UΖ,	VC,	VN,	ZA,	$z_{M}$	, ZW						
		RW:	ΑT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE	, ES,	FI,	FR,	GB,	GR,	HU,	ΙE,
			IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT	, RO,	SE,	SI,	SK,	TR,	BF,	ВJ,
			CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML	, MR,	ΝE,	SN,	TD,	TG,	BW,	GH,
									SD,	SL,	SZ	, TZ,	UG,	ZM,	ZW,	AM,	ΑZ,	BY,
				KΖ,	MD,	RU,												
		4211				B2		2009				2007-					0061	
		2008				A		2008				2008-					0080	
		1013				A		2008	1210			2006-					0080	
PRIOR	ITY	APP	LN.	INFO	. :							2005-			-		0051	
												2006-		-			0060	
												2006-					0060	
												2006-					0060	
											WO :	2006-	JP32	4094	1	W 2	0061	201

OTHER SOURCE(S): MARPAT 147:41962

AB Disclosed is a diaminoarylene compound having a carbazolyl group, which is represented by the general formula (Ar3)(Ar1)N-X-N(Ar2)(Ar4) [wherein Ar1 to Ar4 independently represent a univalent aromatic hydrocarbyl having 6 to 18 carbon atoms which may has a substituent, a univalent heterocyclic group having 2 to 18 carbon atoms which may have a substituent, or a 3-carbazolylderived group, provided that at least one of Ar1 to Ar4 represents a 3carbazolyl-derived group; and X represents a phenanthrene-diyl-derived group which may have a substituent, an o-phenylene-derived group which may have a substituent, or an m-phenylene-derived group which may have a substituent]. Also disclosed is a material for an organic electroluminescence element, which comprises the diaminoarylene compound Further disclosed is an electroluminescence element using the material.

938510-95-3P 938510-99-7P 938511-39-8P 938511-40-1P 938511-41-2P 938511-42-3P 938511-44-5P 938511-45-6P 938511-46-7P

938511-47-8P 938511-48-9P 938511-49-0P 938511-50-3P 938511-51-4P 938511-52-5P

938511-53-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material

use); PREP (Preparation); USES (Uses)

(diaminoarylene compound having carbazolyl group and use thereof for electroluminescent element)

RN 938510-95-3 CAPLUS

CN 1,2-Benzenediamine, N1,N1,N2-triphenyl-N2-(9-phenyl-9H-carbazol-3-yl)(CA INDEX NAME)

RN 938510-99-7 CAPLUS

CN 1,2-Benzenediamine, N1,N1,N2-tris([1,1'-biphenyl]-4-yl)-N2-(9-phenyl-9Hcarbazol-3-yl)- (CA INDEX NAME)

RN 938511-39-8 CAPLUS CN 1.3-Renzenediamine.

CN 1,3-Benzenediamine, N1,N1,N3-triphenyl-N3-(9-phenyl-9H-carbazol-3-y1)-(CA INDEX NAME)

RN 938511-40-1 CAPLUS

CN 2,3-Naphthalenediamine, N2,N2,N3-triphenyl-N3-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

RN 938511-41-2 CAPLUS

CN [1,1'-Biphenyl]-3,5-diamine, N3,N3,N5-triphenyl-N5-(9-phenyl-9H-carbazol-3yl)- (CA INDEX NAME)

RN 938511-42-3 CAPLUS

CN 1,2-Benzenediamine, N1-[1,1'-biphenyl]-4-yl-N1,N2-diphenyl-N2-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938511-44-5 CAPLUS

CN 1,2-Benzenediamine, N1-[4-(diphenylamino)phenyl]-N1,N2-diphenyl-N2-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938511-45-6 CAPLUS

CN Benzonitrile, 4-[pheny1[2-[pheny1(9-pheny1-9H-carbazo1-3-

yl)amino]phenyl]amino]- (CA INDEX NAME)

RN 938511-46-7 CAPLUS

CN 1,2-Benzenediamine, N1-[1,1'-biphenyl]-4-y1-N2-(9-[1,1'-biphenyl]-4-y1-9H-carbazol-3-y1)-N1,N2-diphenyl- (CA INDEX NAME)

RN 938511-47-8 CAPLUS

CN 1,2-Benzenediamine, N1-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N1,N2,N2triphenyl- (CA INDEX NAME)

RN 938511-48-9 CAPLUS

CN 1,2-Benzenediamine, N1-(6,9-diphenyl-9H-carbazol-3-yl)-N1,N2,N2-triphenyl-(CA INDEX NAME)

RN 938511-49-0 CAPLUS

CN 1,3-Benzenediamine, N1-[9-(2-naphthaleny1)-9H-carbazol-3-y1]-N1,N3,N3triphenyl- (CA INDEX NAME)

RN 938511-50-3 CAPLUS

CN 1,3-Benzenediamine, N1-2-naphthalenyl-N1,N3-diphenyl-N3-(9-phenyl-9Hcarbazo1-3-y1)- (CA INDEX NAME)

938511-51-4 CAPLUS

CN 1,3-Benzenediamine, N1-9-phenanthrenyl-N1,N3-diphenyl-N3-(9-phenyl-9Hcarbazo1-3-y1)- (CA INDEX NAME)

CN 1,3-Benzenediamine, N1-(4-methylphenyl)-N1,N3-diphenyl-N3-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938511-53-6 CAPLUS

CN Benzonitrile, 4-[3-[[3-(diphenylamino)phenyl]phenylamino]-9H-carbazol-9yl]- (CA INDEX NAME)

IT 938510-47-5 938510-49-7 938510-76-0 938510-77-1 938510-78-1 938510-83-9 938510-81-7 938510-82-8 938510-83-9 938510-84-0 938510-88-4 938510-88-6 938510-87-3 938510-91-9 938510-92-0 938510-91-9 938510-92-0 938510-93-1 938511-74-1 938511-75-2 938511-76-3 938511-74-9 938511-76-3 938511-76-3 938511-76-1 938511-76-3 938511-78-1 938

RL: TEM (Technical or engineered material use); USES (Uses) (diaminoarylene compound having carbazolyl group and use thereof for

electroluminescent element) 938510-47-5 CAPLUS

RN 938510-47-5 CAPLUS

CN 9,10-Phenanthrenediamine, N9,N9,N10-triphenyl-N10-(9-phenyl-9H-carbazol-3-y1)- (CA INDEX NAME)

RN 938510-49-7 CAPLUS

CN 9,10-Phenanthrenediamine, N9,N9,N10-tris([1,1'-biphenyl]-4-y1)-N10-(9phenyl-9H-carbazol-3-y1)- (CA INDEX NAME)

RN 938510-76-0 CAPLUS

CN 3,6,9,10-Phenanthrenetetramine, N3,N3,N6,N6,N9,N10-hexaphenyl-N9,N10-bis(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-77-1 CAPLUS

CN 2,7,9,10-Phenanthrenetetramine, N2,N2,N7,N7,N9,N10-hexaphenyl-N9,N10-bis(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-79-3 CAPLUS

CN 9,10-Phenanthrenediamine, N9-[1,1'-biphenyl]-4-yl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- RN 938510-81-7 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-[4-(diphenylamino)phenyl]-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- RN 938510-82-8 CAPLUS
- CN Benzonitrile, 4-[phenyl[10-[phenyl(9-phenyl-9H-carbazol-3-yl)amino]-9phenanthrenyl]amino]- (CA INDEX NAME)

- RN 938510-83-9 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-[1,1'-biphenyl]-4-yl-N10-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N9,N10-diphenyl- (CA INDEX NAME)

RN 938510-84-0 CAPLUS

CN 9,10-Phenanthrenediamine, N9-(9-[1,1'-biphenyl]-4-yl-9H-carbazol-3-yl)-N9,N10,N10-triphenyl- (CA INDEX NAME)

RN 938510-85-1 CAPLUS

CN 9,10-Phenanthrenediamine, N9-(6,9-diphenyl-9H-carbazol-3-yl)-N9,N10,N10triphenyl- (CA INDEX NAME)

RN 938510-86-2 CAPLUS

CN 9,10-Phenanthrenediamine, N9-[9-(1-naphthaleny1)-9H-carbazol-3-y1]N9,N10,N10-tripheny1- (CA INDEX NAME)

- RN 938510-87-3 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-[9-(2-naphthalenyl)-9H-carbazol-3-yl]-N9,N10,N10-triphenyl- (CA INDEX NAME)

- RN 938510-88-4 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-1-naphthalenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- RN 938510-89-5 CAPLUS
- CN 9,10-Phenanthrenediamine, N9-2-naphthalenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-90-8 CAPLUS

CN 9,10-Phenanthrenediamine, N9-9-phenanthrenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-91-9 CAPLUS

CN 9,10-Phenanthrenediamine, N9-9-anthracenyl-N9,N10-diphenyl-N10-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-92-0 CAPLUS

9,10-Phenanthrenediamine, N9-(4-methylphenyl)-N9,N10-diphenyl-N10-(9phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938510-93-1 CAPLUS

CN Benzonitrile, 4-[3-[[10-(diphenylamino)-9-phenanthrenyl]phenylamino]-9Hcarbazol-9-yl]- (CA INDEX NAME)

RN 938511-74-1 CAPLUS

RN 938511-75-2 CAPLUS

CN [1,1':4',1''-Terphenyl]-3,5-diamine,
N3,N3,N5-triphenyl-N5-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 938511-76-3 CAPLUS

CN 1,2-Benzenediamine, N1-[9-(1-naphthalenyl)-9H-carbazol-3-yl]-N1,N2,N2triphenyl- (CA INDEX NAME)

RN 938511-77-4 CAPLUS

CN 1,3-Benzenediamine, N1-1-naphthalenyl-N1,N3-diphenyl-N3-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

$$\begin{array}{c|c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & \\ & & & \\ &$$

RN 938511-78-5 CAPLUS

CN 1,3-Benzenediamine, N1-9-anthracenyl-N1,N3-diphenyl-N3-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

$$\bigcap_{h}^{\operatorname{Ph}} \bigcap_{h=\operatorname{Ph}}^{\operatorname{Ph}}$$

REFERENCE COUNT: 7

THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2007:175254 CAPLUS Full-text DOCUMENT NUMBER: 146:238974

TITLE:

Arvlamine compounds which have resistance to repeated oxidation reactions, and light-emitting elements and electronic devices employing the arylamine compounds

Nakashima, Harue; Kawakami, Sachiko

INVENTOR(S): PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Japan

SOURCE: U.S. Pat. Appl. Publ., 48pp. CODEN: USXXCO

DOCUMENT TYPE: LANGUAGE:

Patent English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

		PATENT NO.				KIND		DATE		APPLICATION NO.									
	US	20070037011				A1 20070215			US 2006-500278					20060808					
	WO								WO 2006-JP315351 BA, BB, BG, BR, BW,										
		₩:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,	
			CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,	
			GE,	GH,	GM,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	KE,	KG,	KM,	KN,	KP,	KR,	
			KZ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	MA,	MD,	MG,	MK,	MN,	MW.	
			MX,	MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RS,	RU,	SC,	
			SD,	SE,	SG,	SK,	SL,	SM,	SY,	TJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	US,	
			UZ,	VC,	VN,	ZA,	ZM,	ZW											
		RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,	
			IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,	ΒJ,	
			CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,	GH,	
			GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	BY,	
			KG,	KZ,	MD,	RU,	TJ,	TM											
	JP 2007070352				A	20070322			JP 2006-217779				20060810						
	CN 101243038			A		2008		CN 2006-80029357				20080213							
	KR 2008034191				A		20080418			KR 2008-705376				20080304					
PRIO	PRIORITY APPLN. INFO.:										JP 2	005-	2344	32		A 2	0050	812	
											WO 2	006-	JP31	5351	1	vi 2	0060	727	

MARPAT 146:238974

OTHER SOURCE(S):

AB Secondary arylamine compds. having resistance to repeated oxidation reactions are described by the General Formula NH(Ar1)XN(Ar2)Ar3, wherein Ar1 is one of an arvl group having 7 to 25 C atoms and a heteroarvl group having 7 to 25 C atoms, where each of Ar2 and Ar3 is one of an aryl group having 6 to 25 C atoms and a heteroaryl group having 5 to 9 C atoms, and where X is one of a bivalent aromatic hydrocarbon group having 6 to 25 C atoms and a bivalent heterocyclic group having 5 to 10 C atoms. Light-emitting elements and electronic devices employing the arylamine compds. are also discussed.

IT 884510-66-1P 884510-67-2P

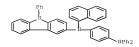
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(arylamine compds. which have resistance to repeated oxidation reactions, and light-emitting elements and electronic devices employing arylamine compds.)

RN 884510-66-1 CAPLUS

CN

1,4-Benzenediamine, N1-1-naphthalenvl-N4,N4-diphenvl-N1-(9-phenvl-9Hcarbazo1-3-y1)- (CA INDEX NAME)



RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)

L4 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2006:542713 CAPLUS Full-text

DOCUMENT NUMBER: 145:17408

TITLE: Light emitting element that includes a mixed carbazole derivative-transition metal oxide hole transport layer INVENTOR(S): Nakashima, Harue; Kawakami, Sachiko; Kumaki, Daisuke;

Seo, Satoshi; Ikeda, Hisao; Sakata, Junichiro; Iwaki, Yuji

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: PCT Int. Appl., 145 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PAI	ENT I	.00			KIN	D	DATE		1	APPL	ICAT	ION	NO.		D	ATE	
WO				A1		20060608		WO 2005-JP22240					20051128				
	W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH
		CN,	co,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KM,	KN,	KP,	KR
		ΚZ,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	MA,	MD,	MG,	MK,	MN,	MW,	MX
		MZ,	NA,	NG,	NI,	NO,	NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE
		SG,	SK,	SL,	SM,	SY,	ΤJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	US,	UZ,	VC
		VN,	YU,	ZA,	ZM,	ZW											
	RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,	HU,	ΙE
		IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT,	RO,	SE,	SI,	SK,	TR,	BF,	BJ
		CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,	GH
		GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	BY
		KG,	KZ,	MD,	RU,	ΤJ,	TM										
CN 101065858				A	20071031			CN 2005-80040713					20051128				
JP 2006303421				A	20061102			JP 2005-345745						20051130			

US 20090058267 KR 2007090215	A1	20090305 20070905		2006-584308		20060623
PRIORITY APPLN. INFO.:	A	20070905		2007-714544	А	20070626
			JP	2005-84566	A	20050323
			WO	2005-JP22240	W	20051128

OTHER SOURCE(S): MARPAT 145:17408

One object of the present invention is to provide a light emitting element AB that includes an organic compound and an inorg, compound and has low driving voltage. The light emitting element of the invention includes a plurality of layers between a pair of electrodes, wherein the plurality of layers includes a layer that contains a carbazole derivative represented by a general formula (I; R1 = e.g., H, alkyl, aryl; R2 = H, alkyl, NAr4YNAr5Ar6; Ar1-Ar6 = aryl, heteroaryl; X, Y = bivalent aromatic hydrocarbon or bivalent heterocycle ) and an inorg, compound exhibiting an electron accepting property with respect to the carbazole derivative By utilizing this structure, electrons are transported between the carbazole derivative and the inorg, compound and carriers are internally generated, and hence, the driving voltage of the light emitting element can be reduced. Thus, e.g., coupling of 3,6-diiodo-9phenylcarbazole (preparation given) with PhNHC6H4-p-NPh2 (preparation given) afforded target carbazole II (75% yield). A 50 nm film containing II and molybdenum oxide (1:1.5 molar ratio) exhibited a charge-transfer absorption band (absent in either component of the film taken individually) representing hole generation in II and electron acceptance by molybdenum oxide; consequently, the driving voltage of a light-emitting element can be reduced because of this internal carrier generation.

IT 884510-64-9P 884510-65-0P 884510-66-1P

884510-67-2P

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses) (light emitting element that includes a mixed carbazole

derivative-transition metal oxide hole transport layer)

RN 884510-64-9 CAPLUS

CN 1,4-Benzenediamine, N1,N1,N4-triphenyl-N4-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

RN 884510-65-0 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

RN 884510-66-1 CAPLUS

CN 1,4-Benzenediamine, N1-1-naphthalenyl-N4,N4-diphenyl-N1-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

RN 884510-67-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)

REFERENCE COUNT:

11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2009 ACS ON STN ACCESSION NUMBER: 2006:380901 CAPLUS Full-text DOCUMENT NUMBER: 144:422228

TITLE:

Carbazole derivative, and light emitting element and light emitting device using the carbazole derivative Nakashima, Harue; Kawakami, Sachiko; Kumaki, Daisuke Semiconductor Energy Laboratory Co., Ltd., Japan

INVENTOR(S): PATENT ASSIGNEE(S):

PCT Int. Appl., 142 pp.

SOURCE:

CODEN: PIXXD2

DOCUMENT TYPE: LANGUAGE:

Pat.ent. English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.							APPLICATION NO.										
	2006																0051	014
	W:	ΑE,	AG,	AL,	AM,	ΑT,	AU,	AZ,	BA,	BI	в,	BG,	BR,	BW,	BY,	ΒZ,	CA,	CH,
		CN,	CO,	CR,	CU,	CZ,	DE,	DK,	DM,	D	Z,	EC,	EE,	EG,	ES,	FI,	GB,	GD,
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	_ I:	S,	JP,	KE,	KG,	KM,	KP,	KR,	ΚZ,
		LC,	LK,	LR,	LS,	LT,	LU,	LV,	LY,	M	Α,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,
		NA,	NG,	ΝI,	NO,	NZ,	OM,	PG,	PH,	- P1	L,	PT,	RO,	RU,	SC,	SD,	SE,	SG,
		SK,	SL,	SM,	SY,	ТJ,	TM,	TN,	TR,	T.	Γ,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,
		YU,	ZA,	ZM,	zw													
	RW:	ΑT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	E	Ε,	ES,	FI,	FR,	GB,	GR,	HU,	ΙE,
		IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	P.	Γ,	RO,	SE,	SI,	SK,	TR,	BF,	ΒJ,
		CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	M	L,	MR,	ΝE,	SN,	TD,	TG,	BW,	GH,
		GM,	ΚE,	LS,	MW,	ΜZ,	NA,	SD,	SL,	S	Z,	TZ,	UG,	ZM,	ZW,	AM,	ΑZ,	ΒY,
		KG,	ΚZ,	MD,	RU,	ТJ,	TM											
EP	1805	140			A1 20070711				EP 2005-795774					20051014				
	R:	DE,	FI,	FR,	GB,	NL												
	1010							0919		CN	20	05-	8003	5385		2	0051	014
	2006													32			0051	018
US	2008	0284	328		A1		2008	1120		US	20	06-	5830	28		2	0060	615
PRIORIT	PRIORITY APPLN. INFO.:									JP	20	04-	3042	25		A 2	0041	019
										JP	20	04-	3333	44		A 2	0041	117
										JP	20	05-	8453	3		A 2	0050	323
										WO	20	05-	JP19	349		W 2	0051	014
OTHER S	OURCE	(S):			MAR	PAT	144:	42222	8									

The title carbazole derivs. are described by the general formula I (R1 = H, AB C1-6 alkyl, C6-25 aryl, C5-9 heteroaryl, arylalkyl, or C1-7 acyl; R2 = H, C1-6 alkyl, or -N(Ar4)-Y-N(Ar5)Ar6; Ar1-6 = independently selected C6-25 aryl and/or C5-9 heteroaryl; and X and Y = independently selected C6-25 bivalent aromatic hydrocarbon and/or C5-10 bivalent heterocyclic group). Lightemitting elements incorporating the derivs., devices (e.g., displays) incorporating the elements, and electronic apparatus employing the elements, are also described.

884510-64-9P 884510-65-0P 884510-66-1P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

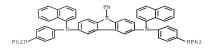
(carbazole derivative, and light emitting element and light emitting device using carbazole derivative)

- RN 884510-64-9 CAPLUS
  - CN 1,4-Benzenediamine, N1,N1,N4-triphenyl-N4-(9-phenyl-9H-carbazol-3-yl)-(CA INDEX NAME)

- RN 884510-65-0 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6,9triphenyl- (CA INDEX NAME)

- RN 884510-66-1 CAPLUS
- CN 1,4-Benzenediamine, N1-1-naphthalenyl-N4,N4-diphenyl-N1-(9-phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

- IT 884510-67-2P
  - RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
  - (carbazole derivative, and light emitting element and light emitting device using carbazole derivative)
- RN 884510-67-2 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-N3,N6-di-1-naphthalenyl-9-phenyl- (CA INDEX NAME)



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2005:1077993 CAPLUS Full-text

DOCUMENT NUMBER: 143:376607

TITLE: Fluorene-based compound and organic electroluminescent

display device using the same

INVENTOR(S): Hwang, Seok-Hwan; Lee, Seok-Jong; Kim, Young-Kook;

Yang, Seung-Gak; Kim, Hee-Yeon

PATENT ASSIGNEE(S): S. Korea
SOURCE: U.S. Pat. Appl. Publ., 31 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050221124 KR 2005097670	A1 A	20051006 20051010	US 2005-97182 KR 2004-22877	20050404 20040402
JP 2005290000 CN 1702065 US 20070231503	A A A1	20051020 20051130 20071004	JP 2005-106551 CN 2005-10069765 US 2007-806039	20050401 20050401 20070529
PRIORITY APPLN. INFO.:	***	20072001	KR 2004-22877 A KR 2004-54700 A	
				20041129
				2 20050713 2 20051125 20060529

OTHER SOURCE(S): MARPAT 143:376607

GI

AB A fluorene-based compound represented by the general formula I where Z is represented by the general formula II, III, and IV, where Ar is a substituted or unsubstituted aryl group or a group by the general formula V (X = N, B or P; Y = a single bond, a (un)substituted C1-C30 alkylene group, a (un)substituted C6-C30 arylene group, a (un)substituted C4-C30 heterocyclic group; RI, R2, R3 = H, (un)substituted C1-C30 alkyl group, a (un)substituted C6-C30 aryl group, a (un)substituted C4-C30 heterocyclic group, a (un)substituted C4-C30 heterocyclic group a (un)substituted C4-C30 heterocyclic group among R1, R2 and R3 are connected to each other to form a (un)saturated carbon

<sup>\*</sup> STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

ring; R', R'' = H, a hydroxy group, a (un)substituted C1-C30 alkyl group, a (un) substituted C6-C30 aryl group) is described. An organic electroluminescent display device comprising two electrodes; and an organic layer interposed between the electrodes, wherein the organic layer comprises the fluorene-based compound is also described.

866119-23-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fluorene-based compound and organic electroluminescent display device usina

the same)

866119-23-5 CAPLUS RN

1,4-Benzenediamine, N1-(9,9-dimethyl-9H-fluoren-3-yl)-N4,N4-diphenyl-N1-(9phenyl-9H-carbazol-3-yl)- (CA INDEX NAME)

L4 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN 2005:1042363 CAPLUS <u>Full-text</u> ACCESSION NUMBER:

DOCUMENT NUMBER: 143:356288

TITLE: Phenyl carbazole derivatives and organic electroluminescent devices using the same

INVENTOR(S): Kim, Ji-Eun; Lee, Jae-Chol; Kim, Kong-Kyeom; Bae, Jae-Soon; Jang, Jun-Gi; Jeon, Sang-Young; Kang,

Min-Soo; Cho, Wook-Dong; Jeon, Byung-Sun; Kim, Yeon-Hwan

PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea SOURCE: PCT Int. Appl., 126 pp.

CODEN: PIXXD2 Patent

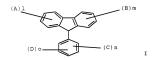
DOCUMENT TYPE: LANGUAGE: English FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.					KIND		DATE		APPLICATION NO.						DATE		
WO 2005090512				A1 20		2005	20050929		WO 2005-KR794					20050318			
	W:	ΑE,	AG,	AL,	AM,	AT,	AU,	AZ,	BA,	BB,	BG,	BR,	BW,	BY,	BZ,	CA,	CH,
		CN,	co,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	EE,	EG,	ES,	FI,	GB,	GD,
		GE,	GH,	GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KE,	KG,	KP,	KZ,	LC,	LK,
		LR,	LS,	LT,	LU,	LV,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NA,	NI,	NO,
		NZ,	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SY,
		TJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	UZ,	VC,	VN,	YU,	ZA,	ZM,	ZW	
	RW:	BW,	GH,	GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,	SZ,	TZ,	UG,	ZM,	ZW,	AM,
		AZ,	BY,	KG,	KZ,	MD,	RU,	TJ,	TM,	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,
		EE,	ES,	FI,	FR,	GB,	GR,	HU,	IE,	IS,	IT,	LT,	LU,	MC,	NL,	PL,	PT,
		RO,	SE,	SI,	SK,	TR,	BF,	BJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,
		MR,	NE,	SN,	TD,	TG											
KR 2005118098				A		2005	1215		KR 2	004-	1163	88		2	0041	230	

US	2005	0225	235		A1		2005	1013		US	2005-	8336	0			20050	318
KR	2006	04442	24		A		2006	0516		KR	2005-	2276	2			20050	318
EP	1725	632			A1		2006	1129		EP	2005-	7334	37			20050	318
	R:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EF	, ES,	FI,	FR,	GB,	GR	HU,	ΙE,
		IS,	IT,	LI,	LT,	LU,	MC,	NL,	PL,	PI	, RO,	SE,	SI,	SK,	TR		
CN	1906	268			A		2007	0131		CN	2005-	8000	1667			20050	318
JP	2007	5204	70		T		2007	0726		JΡ	2006-	5468	60			20050	318
IN	2006	KN01	538		A		2007	0511		IN	2006-	KN16	38			20060	613
PRIORIT	Y APP	LN.	INFO	. :						KR	2004-	1887	7		Α :	20040	319
										KR	2004-	1163	88		Α :	20041	230
										WO	2005-	KR79	4		W :	20050	318
OTHER S	DURCE	(S):			MARE	PAT	143:	3562	38								

OTHER SOURCE(S): MARPAT 143:35628



- AB N-Ph carbazole derivs. are claimed which are described by the general formula I (A = -R1N(R2) -, or -R1N(R2) -Ar -; B = -R3N(R4) -, or -R3N(R4) -Ar -; C = -R3N(R4) -R3N(R5N(R6) -, or -R5N(R6) -Ar-; D = H, -R7N(R8) -, or -R9N(R10) -Ar-; R1-10 = independently selected group each comprising only once or repeatedly ≥2 times, ≥1 of H, C1-20 aliphatic hydrocarbon, aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy, or amino group, silicon group having an aromatic substituent; heterocyclic aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy or amino group, thiophene group substituted with a C1-20 hydrocarbon or C6-24 aromatic hydrocarbon; and a boron group substituted with an aromatic hydrocarbon; Ar = an aromatic hydrocarbon unsubstituted or substituted with a nitro, nitrile, halogen, alkyl, alkoxy, or amino group; and  $1 \ge 1$ ;  $m \ge 1$ ;  $n \ge 1$ ; and  $o \ge 0$ ; with the restriction that the compound represented by formula I wherein R1-6 = H simultaneously and D also = H is excluded). Organic electroluminescent devices using the compds., especially in hole-injecting, hole-transporting, or light-emitting layers, are also described.
- IT 865596-39-0 865596-40-3
  - RL: DEV (Device component use); USES (Uses)
  - (Ph carbazole derivs. and organic electroluminescent devices using them)
- RN 865596-39-0 CAPLUS
- CN 9H-Carbazole-3,6-diamine, N3,N6,9-tris[4-(diphenylamino)phenyl]-N3,N6-diphenyl- (CA INDEX NAME)

RN 865596-40-3 CAPLUS

CN 9H-Carbazole-3,6-diamine, N3,N6-bis[4-(diphenylamino)phenyl]-9-[4-(1-naphthalenylphenylamino)phenyl]-N3,N6-diphenyl- (CA INDEX NAME)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2005:781000 CAPLUS Full-text

DOCUMENT NUMBER: 143:396220

TITLE: Efficient UV-sensitive organic photovoltaic devices

using a starburst amine as electron donor

AUTHOR(S): Li, Jiuyan; Lee, Chun-Sing; Lee, Shuittong
CORPORATE SOURCE: Center of Super-Diamond & Advanced Films (COSDAF) and

Dept. of Physics and Materials Sciences, City

University of Hong Kong, Hong Kong SAR, Peop. Rep.

China

SOURCE: Journal of Materials Chemistry (2005), 15(32),

3268-3271

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Organic photovoltaic devices using starburst amine PCATA (triphenylamine with carbazole substituents) as the electron donor layer gave a quantum efficiency of up to 21.7% at short-circuit conditions, which is higher than those reported for UV-sensitive organic PV cells.

IT 847158-26-3

RL: DEV (Device component use); PRP (Properties); USES (Uses) (electron donor layer; UV-sensitive photovoltaic devices using starburst triphenylamine derivative as electron donor layer)

RN 847158-26-3 CAPLUS

CN 1,4-Benzenediamine, N1-(9-ethyl-9H-carbazol-3-yl)-N4,N4-bis[4-[(9-ethyl-9H-

carbazol-3-y1)(3-methylphenyl)amino]phenyl]-N1-(3-methylphenyl)- (CA INDEX NAME)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2005:12250 CAPLUS Full-text

DOCUMENT NUMBER: 142:287529

TITLE: Novel Starburst Molecule as a Hole Injecting and Transporting Material for Organic Light-Emitting

Devices

AUTHOR(S): Li, Jiuyan; Ma, Chunwah; Tang, Jianxin; Lee,

Chun-Sing; Lee, Shuittong

CORPORATE SOURCE: Center of Super-Diamond and Advanced Films (COSDAF) and Department of Physics and Materials Sciences, City

University of Hong Kong, Hong Kong, Hong Kong

SOURCE: Chemistry of Materials (2005), 17(3), 615-619 CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

The authors report the synthesis of a novel starburst mol., 4,4',4''-tris(N-3-methylphenyl-N-(9-ethylcarbazyl-3)amino) triphenylamine (PCATA), and its application in organic light-emitting devices (OLEDs). The introduction of PCATA into the standard NPB/Alg3 OLED as the hole injecting and transporting layer dramatically enhanced the device efficiency to 5.7 cd/A and 2.2 Im/W, which are a factor of 2 higher than those of the standard OLED without the PCATA layer. The performance enhancement is attributed to a better balance of hole and electron injection in the PCATA-added OLED.

IT 847158-26-3P

RL: DEV (Device component use); PNU (Preparation, unclassified); PRP

(Properties); PREP (Preparation); USES (Uses)

(PCATA; novel starburst mol. as a hole injecting and transporting

material for organic light-emitting devices)

RN 847158-26-3 CAPLUS

CN 1,4-Benzenediamine, N1-(9-ethyl-9H-carbazol-3-yl)-N4,N4-bis[4-[(9-ethyl-9H-carbazol-3-yl)(3-methylphenyl)amino]phenyl]-N1-(3-methylphenyl)- (CA INDEX NAME)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 2003:532189 CAPLUS Full-text

DOCUMENT NUMBER: 139:92577

TITLE: Organic EL device

INVENTOR(S): Lin, Tung-Shen; Yeh, Kun-Tay
PATENT ASSIGNEE(S): Lightronik Technology Inc., Taiwan

SOURCE: U.S. Pat. Appl. Publ., 13 pp. CODEN: USXXCO

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO. DATE
US 20030129448	A1	20030710	US 2001-982011 20011019
US 6602619	B2	20030805	
PRIORITY APPLN. INFO.:			US 2001-982011 20011019
OTHER SOURCE(S):	MARPAT	139:92577	
GI			

- AB An organic EL device which contains an anode, a cathode, and at least one organic thin-file layer including a light emitting layer which contains a compound represented I and II, wherein Rl represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, a substituted or unsubstituted amino group, a substituted or unsubstituted aryloxy group, or a substituted or unsubstituted aryloxy group, are substituted or unsubstituted aryloxy group, and Rx is 21 functional groups represented by a Hatom, halogen atom, nitro group, cyano group, carboxyl group, or Rl. Any two Rx groups may form a ring. X represents O atom, N atom and S atom. A blue organic EL device can be provided according to the present invention.
- IT 556826-27-8 556826-28-9 556826-29-0
  RL: DEV (Device component use); USES (Uses)

(organic EL device with N-substituted carbazole in light-emitting laver)

RN 556826-27-8 CAPLUS

CN 1,4-Benzenediamine, N1-[6-(1H-benzimidazo1-2-y1)-9-ethyl-9H-carbazo1-3-y1]N1,N4,N4-tris(4-methylphenyl)- (CA INDEX NAME)

RN 556826-28-9 CAPLUS

CN 1,4-Benzenediamine, N1-[6-[5-(1,1-dimethylethyl)-2-benzoxazolyl]-9-ethyl-9H-carbazol-3-yl]-N1,N4,N4-tris(4-methylphenyl)- (CA INDEX NAME)

L4 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN ACCESSION NUMBER: 1987:565424 CAPLUS Full-text

DOCUMENT NUMBER: 107:165424

ORIGINAL REFERENCE NO.: 107:26425a,26428a

TITLE: Electrophotographic charge-generating tetrakisazo

photoconductors

INVENTOR(S): Matsumoto, Masakazu; Umehara, Masashige; Takiguchi,

Takao; Yamashita, Masataka; Ishikawa, Shozo
PATENT ASSIGNEE(S): Canon K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 6

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
				-	
JP 62019875	A	19870128	JP 1985-159402		19850718
JP 04048388	В	19920806			
US 4666810	A	19870519	US 1986-852243		19860415
PRIORITY APPLN. INFO.:			JP 1985-80248	A	19850417
			JP 1985-157699	A	19850717
			JP 1985-157700	Α	19850717
			JP 1985-159401	Α	19850718
			JP 1985-159402	Α	19850718
			JP 1985-159403	A	19850718

AB The tetrakisazo photoconductor has the formula (AN.MZ3) (AN.NAZ) (AZS) (AN.NAZ) (ZSN.NA) (I, A = coupler residue with a phenolic OH group; 21-26 = arylene, condensed polycyclylene, heterocyclylene; X = NR, O, S, SOZ, CO; R = H, alkyl, aryl, etc.). An electrophotog. charge generating layer may contain a tetrakisazo compound of the formula I (A = coupler residue from 3-hydroxy-2-naphthoic acid anilide; Z1-Z6 = 1,4-phenylene; X = NH) and a poly(vinyl butyral) binder. It provides electrophotog, photoreceptors with improved sensitivity and voltage stability for repeated use.

IT 110743-07-2

RL: USES (Uses)

(electrophotog, charge-generating photoconductor, with improved

sensitivity and voltage stability for repeated use)

RN 110743-07-2 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide,

1,1',1'',1'''-[[(9-bromo-9H-carbazol-3-yl)imino]bis[4,1-phenylenenitrilobis(4,1-phenyleneazo)]]tetrakis[N-(2-cyanophenyl)-2-

hydroxy- (9CI) (CA INDEX NAME)

PAGE 1-A

PAGE 1-B